

**COMMERCIAL IN CONFIDENCE**

Delta Electricity

## **Project Symphony – Vales Point Power Station**


### *Stage 2 Environmental Site Assessment*

Final

Ref: 0237747

July 2014

**Project Symphony -  
Vales Point Power Station**  
*Stage 2 Environmental Site Assessment*

Approved by:	Peter Lavelle
Position:	Technical Director
Signed:	
Date:	July, 2014

Delta Electricity - Project Symphony

July 2014

Final

*Environmental Resources Management Australia Pty Ltd Quality System*

0237747

[www.erm.com](http://www.erm.com)

This disclaimer, together with any limitations specified in the report, apply to use of this report. This report was prepared in accordance with the contracted scope of services for the specific purpose stated and subject to the applicable cost, time and other constraints. In preparing this report, ERM relied on: (a) client/third party information which was not verified by ERM except to the extent required by the scope of services, and ERM does not accept responsibility for omissions or inaccuracies in the client/third party information; and (b) information taken at or under the particular times and conditions specified, and ERM does not accept responsibility for any subsequent changes. This report has been prepared solely for use by, and is confidential to, the client and ERM accepts no responsibility for its use by other persons. This report is subject to copyright protection and the copyright owner reserves its rights. This report does not constitute legal advice.



CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	
1.1	OBJECTIVES	1
1.2	APPROACH AND SCOPE OF WORK	1
1.3	MATERIALITY THRESHOLD	3
1.4	REPORT STRUCTURE	3
1.5	LIMITATIONS	4
<b>2</b>	<b>BACKGROUND</b>	
2.1	SITE SETTING	5
2.1.1	SITE IDENTIFICATION	5
2.1.2	SITE FEATURES	6
2.1.3	SURROUNDING ENVIRONMENT	7
2.2	ENVIRONMENTAL SETTING	9
2.2.1	TOPOGRAPHY	9
2.2.2	HYDROLOGY	9
2.2.3	GEOLOGY	10
2.2.4	HYDROGEOLOGY	11
2.2.5	GROUNDWATER USE	12
2.3	SITE OPERATIONAL HISTORY	12
2.4	NSW EPA CONTAMINATED SITE RECORDS	13
2.5	PREVIOUS ENVIRONMENTAL INVESTIGATIONS	13
2.6	POTENTIAL AND KNOWN SOURCES OF CONTAMINATION	14
2.7	SENSITIVE RECEPTORS	17
<b>3</b>	<b>DATA QUALITY OBJECTIVES</b>	
3.1	STEP ONE: STATE THE PROBLEM	18
3.2	STEP TWO: IDENTIFY THE DECISION	18
3.3	STEP THREE: IDENTIFY INPUTS TO DECISION	19
3.4	STEP FOUR: DEFINE THE STUDY BOUNDARIES	19
3.5	STEP FIVE: DEVELOP A DECISION RULE	20
3.5.1	SAMPLE LOCATIONS	20
3.5.2	FIELD AND LABORATORY QA/QC	21
3.5.3	SCREENING VALUES	21
3.5.4	APPROPRIATENESS OF LABORATORY LIMIT OF REPORTING	22
3.6	STEP SIX: SPECIFY LIMITS ON DECISION ERRORS	22
3.7	STEP SEVEN: DEVELOP (OPTIMISE) THE PLAN FOR COMPLETING THE WORKS	23
<b>4</b>	<b>INVESTIGATION METHODOLOGY</b>	
4.1	SAMPLING LOCATIONS	24
4.2	SITE INSPECTION	27
4.3	SOIL INVESTIGATION	27

## COMMERCIAL IN CONFIDENCE

### CONTENTS

4.3.1	SOIL SAMPLING PROCEDURE	27
4.3.2	DECONTAMINATION PROCEDURE	29
4.3.3	SOIL BORE REINSTATEMENT	29
4.3.4	MANAGEMENT OF WASTE MATERIALS GENERATED DURING DRILLING	29
4.4	GROUNDWATER INVESTIGATION	29
4.4.1	MONITORING WELL CONSTRUCTION	29
4.4.2	GROUNDWATER PURGING AND SAMPLING PROTOCOL	30
4.4.3	WASTE MATERIAL GENERATED DURING GROUNDWATER DEVELOPMENT/PURGING	32
4.5	SURVEYING	32
4.6	SEDIMENT INVESTIGATION	32
4.7	SURFACE WATER INVESTIGATION	33
4.8	LABORATORY ANALYSIS	33
4.9	QUALITY ASSURANCE/QUALITY CONTROL	34
4.10	DATA SCREENING	34
4.10.1	SOIL SCREENING VALUES	35
4.10.2	GROUNDWATER AND SURFACE WATER SCREENING VALUES	36
4.10.3	SEDIMENT SCREENING VALUES	37
4.10.4	SCREENING VALUES FOR PERFLUOROOCTANE SULFONATE (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA)	37
4.10.5	SCREENING VALUES FOR SELENIUM	38
5	RESULTS AND DISCUSSION	
5.1	SITE GEOLOGY OBSERVATIONS	40
5.2	GROUNDWATER FIELD OBSERVATIONS	41
5.3	AREAS OF ENVIRONMENTAL CONCERN (AEC) SUMMARY	42
5.3.1	VA – B STATION POWER BLOCK	42
5.3.2	VB – FORMER A STATION	47
5.3.3	VC – TRANSFORMER AREA	50
5.3.4	VD – MAIN DANGEROUS GOODS STORE	53
5.3.5	VE – CONTAMINATED WATER TREATMENT PLANT	55
5.3.6	VF – WASTE OIL STORAGE	58
5.3.7	VG – FUEL OIL INSTALLATION	60
5.3.8	VH – VEHICLE REFUELLING DEPOT	63
5.3.9	VI – WATER TREATMENT PLANT AREA	65
5.3.10	VJ – COAL STORAGE AREA	68
5.3.11	VK – MOBILE PLANT MAINTENANCE AND REFUELLING AREAS	71
5.3.12	VL – SEWAGE TREATMENT PLANT	73
5.3.13	VM – CHLORINE PLANT	75
5.3.14	VN – WYEE COAL UNLOADER AREA AND COAL CONVEYORS	78
5.3.15	VO – ASH DAM	81
5.3.16	VP – ASBESTOS LANDFILLS	85
5.3.17	VQ – DUST LINE	88
5.3.18	VR – SEDIMENTS IN SURROUNDING WATERWAYS	90

CONTENTS

5.3.19	VS - TRANSGRID SWITCHYARD	96
5.3.20	VT - FLY ASH PLANT	98
5.3.21	VU - BUFFER LANDS AND BOUNDARIES	100
5.4	METAL AND METALLOID CONCENTRATIONS IN GROUNDWATER	103
5.5	DATA QUALITY	109
6	OVERALL DISCUSSION	
6.1	SUMMARY - THE NATURE AND EXTENT OF SOIL, SEDIMENT, GROUNDWATER AND SURFACE WATER IMPACT	110
6.1.1	ONSITE SOIL	111
6.1.2	ONSITE GROUNDWATER	112
6.1.3	OFFSITE SEDIMENTS AND SURFACE WATERS	113
6.2	SUMMARY - DOES THE IDENTIFIED IMPACT REPRESENT A RISK TO HUMAN HEALTH AND/OR THE ENVIRONMENT?	114
6.2.1	ONSITE SOIL	114
6.2.2	ONSITE GROUNDWATER	116
6.2.3	OFFSITE SURFACE WATER AND SEDIMENT	120
6.3	SUMMARY - DOES THE IMPACT WARRANT NOTIFICATION UNDER THE CONTAMINATED LAND MANAGEMENT ACT 1997?	121
6.3.1	BENZENE IN GROUNDWATER - AEC VH AND VP	122
6.3.2	PFOS IN GROUNDWATER	123
6.3.3	METALS IN GROUNDWATER	123
6.3.4	SELENIUM IN SEDIMENT	125
6.3.5	SUMMARY - IS MATERIAL REMEDIATION OR MANAGEMENT LIKELY TO BE REQUIRED?	126
6.4	SUMMARY - IS THE DATA SUITABLE TO PROVIDE A BASELINE OF ENVIRONMENTAL CONDITIONS AT THE SITE AND IMMEDIATE SURROUNDING RECEIVING ENVIRONMENTS	127
7	CONCLUSIONS	
8	REFERENCES	

LIST OF ANNEXES

ANNEX A FIGURES

ANNEX B TABLES

ANNEX C REFINED CSM

ANNEX D BORELOGS

ANNEX E FIELD DOCUMENTATION



COMMERCIAL IN CONFIDENCE

*ANNEX F QUALITY ASSURANCE QUALITY CONTROL*

*ANNEX G PHOTOLOG*

*ANNEX H LABORATORY CERTIFICATES*

*ANNEX I EIL AND UCL CALCULATIONS*

*ANNEX J SURVEY DATA*

## **EXECUTIVE SUMMARY**

*Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Delta Electricity to undertake a Stage 2 Environmental Site Assessment (Stage 2 ESA) at Vales Point Power Station (herein referred to as the "Site") in accordance with the work scope presented in the Preliminary Environmental Site Assessment (PESA; ERM Reference 0227637RP01) prepared by ERM.*

*The primary objective for the Stage 2 ESA was to develop a baseline of environmental conditions at the Site, as at or near the time of the sale of the Site. Data obtained during completion of this Stage 2 ESA may also be used to inform future management of contamination at the Site.*

### **Investigation Methodology**

*To achieve the stated objectives, ERM collected soil, sediment, surface water and groundwater samples and submitted the samples to environmental laboratories for analysis of Constituents of Potential Concern (COPCs). A Conceptual Site Model (CSM) developed for the Site during the PESA was further refined and the analytical data was compared against published environmental screening values to assess potential risks to human health and the environment.*

*The following conclusions were made based on the data collected during the investigation.*

### **Investigation Outcomes**

- The key impacts identified included benzene in groundwater in the Vehicle Refuelling Area and downgradient of the Asbestos Landfills, PFOS (a chemical associated with firefighting foams) in groundwater around the boundary of the former A Station Demolition Area and the Chlorine Plant and Total Recoverable Hydrocarbons (TRH), benzo(a)pyrene, asbestos and metals in individual soil samples across the Site.*
- Selenium concentrations above adopted screening values were also identified in sediment samples collected from within Wyee Creek and Mannering Lake. It is considered likely that discharges from the Ash Dam, potentially including licensed discharges, runoff and groundwater flow have partially contributed to these impacts. Other potential sources within the catchment include mines, other power stations and other industries. The selenium concentrations identified in the current assessment were of the same order of magnitude as those identified in historic investigations suggesting that, as a result of changes to the management of discharges from the Ash Dam, the selenium load in Wyee Creek and Mannering Bay sediments has not increased significantly in recent years.*
- TRH and chlorinated hydrocarbons were reported in groundwater samples collected around the boundary of former A Station Demolition Area. The former A Station area could not be investigated directly due to ongoing demolition work and thus a potential data gap exists in this area.*

- *Various metals were identified at concentrations in excess of the adopted screening values across the Site. Where metals were identified above background concentrations, impact generally appears to be localised in distinct areas of the Site. The Ash Dam and Coal Storage Area, where the creation of Acid Sulfate Soil (ASS) conditions through the disturbance of alluvial sediments, historical and current underground coal mining works and/or the long term storage of waste ash materials and coal may have contributed to the observed metal impacts in groundwater. Acidic groundwater conditions in the vicinity of the Vehicle Refuelling Area also appear to have contributed to the presence of elevated metal concentrations in groundwater in that part of the Site.*
- *Fly-tipped waste was identified on the soil surface on the eastern boundary of the Wyee Rail Coal Unloader Area in the vicinity of the publicly accessible roadway.*

### ***Human Health and Environmental Risks***

- *With the exception of the selenium impacts identified in sediment (see below), the impacts identified in soil and groundwater at the sites are generally unlikely to represent a significant risk to human health and/or the environment given appropriate ongoing management based on the current and continued use of the Site as a Power Station.*
- *The selenium concentrations measured in Wyee Creek and Mannering Bay have the potential to adversely affect marine organisms in these areas. ERM understands that elevated selenium concentrations have previously been measured in fish collected from Mannering Bay and that the NSW EPA has previously been made aware of these impacts. Signage has been posted along Rutleys Road warning the public about the potential health risks associated with the long-term consumption of fish from this area.*
- *Licensed groundwater bores are not present in the immediate vicinity of the Ash Dam, but rural residential and residential communities are located immediately to the north, west and south. If the extraction of groundwater for potable, domestic, stock watering or commercial purposes was to occur in these areas in the future, the elevated metal concentrations in groundwater may be associated with risks to human health or livestock. It is recommended that this issue is raised with the NSW EPA when discussing the next scheduled deliverable associated with Pollution Reduction Program (PRP) being implemented in the Ash Dam area. It is suggested that the NSW EPA should manage ongoing communications on this issue, given the range of potential sources of metals in groundwater in this area and potential for the wider distribution of metals in groundwater.*
- *Asbestos was detected in individual shallow soil samples collected from bare ground within the Transformer Area, Chlorine Plant and around the boundaries of the Asbestos Landfill at concentrations in excess of the adopted human health screening values. All of these areas of asbestos impact may represent a health risk if Site employees were to come into contact with them. ERM understands that Delta has recorded these sites in its Asbestos Register and that these impacts shall be managed in accordance with Delta's existing asbestos management procedures.*



**Site Management and Remediation Requirements**

*Contamination issues that may require material management, remediation or further investigation, based on the current and continued use of the Site as a Power Station include the metals impacts in groundwater in the vicinity of the Ash Dam. These metal impacts in the vicinity of the Ash Dam are currently managed by Delta but this is an ongoing issue which could, in a worst case scenario, be material. Estimates for ongoing costs have not been made, as these costs will be dependent on outcome of the Pollution Reduction Program (PRP) currently in place within the Ash Dam area and ongoing discussions with NSW EPA. It is also noted that elevated background metal concentrations are present in the area and that the potential exists for inputs from current and historic mining activities and other potential sources to be material.*

*It is noted that conducting intrusive investigations within the B Station, Transformer Area and Former A Station demolition Area was not possible, due to the health and safety issues associated with demolition works and the presence of underground services in these areas. Further assessment may be required to identify unidentified soil and groundwater impacts within these areas if the land use of the Site was to change in the future.*

**Requirements under the Contaminated Land Management (CLM) Act 1997**

*ERM considers that NSW EPA would most likely continue to manage the metals in groundwater in the vicinity of the Ash Dam under the POEO Act (1997) via the Site Environmental Protection License (EPL). The Vales Point EPL includes the requirement for monthly groundwater monitoring in the vicinity of the Ash Dam throughout 2014. It is recommended that Delta include groundwater results from within the Ash Dam Area in the next scheduled report to the NSW EPA.*

*It is recommended that the NSW EPA is notified regarding the benzene concentrations measured in excess of the adopted human health (drinking water) screening levels in the Vehicle Refuelling Area and Asbestos Landfills. On the basis that the identified benzene impacts do not appear to be migrating offsite, it is considered unlikely in ERM's opinion that these impacts would be considered significant enough to warrant regulation by the NSW EPA.*

## 1 INTRODUCTION

On 24 November 2011, the New South Wales (NSW) Government announced that it would divest certain State-owned electricity generation assets. In order to support the sale of electricity generation assets owned and operated by Delta Electricity (a State Owned Corporation), Environmental Resources Management Australia Pty Ltd (ERM) were commissioned to undertake a Stage 2 Environmental Site Assessment (Stage 2 ESA) at Vales Point Power Station.

Vales Point Power Station, herein referred to as “the Site”, is situated adjacent to the southern shore of Lake Macquarie, near the township of Mannering Park, approximately 35 km south of Newcastle, NSW. A Site location plan is presented as *Figure 1 of Annex A*. The general Site layout is presented in *Figure 2 and Figure 3 of Annex A*.

The works detailed herein were completed in accordance with the work scope presented in the *Preliminary Environmental Site Assessment (PESA)* (ERM, 2014).

### 1.1 OBJECTIVES

The primary objective for the Stage 2 ESA was to gather soil, sediment, surface water and groundwater data in order to develop a baseline assessment of environmental conditions at the Site and within surrounding receiving environments (including sediment and surface water samples from Wyee Creek and Lake Macquarie), as at or near the time of the proposed transaction. Data obtained during completion of the Stage 2 ESA may also be used to inform future management of contamination issues both at the Site and in relation to the relevant receiving environments.

### 1.2 APPROACH AND SCOPE OF WORK

The adopted approach and scope of works for the Stage 2 ESA works comprised the following general tasks, in accordance with the requirements set out in the Sampling Analysis and Quality Plan (SAQP) defined in *Annex G* of the *PESA* (ERM, 2014):

#### *Preliminaries*

- preparation of a site-specific Health and Safety Plan (HASP) and Environmental Management Plan (EMP);
- assessment of whether suitable monitoring wells exist at the Site, and whether they can be sampled as part of this investigation;

- identification of areas and constituents of potential concern additional to those identified during the *PESA* (ERM, 2014) ;
- revision and amendment of the *SAQP* (ERM, 2014), as necessary;
- engagement of subcontractors including underground utility locators, drillers, laboratories and surveyors;
- scheduling of Site works with Delta Electricity; and
- completion of site-specific inductions and permitting.

*Site Works*

- ground-truthing of proposed sampling locations including clearance of underground services as noted below;
- identification of above and below ground services in the vicinity of drilling locations by reviewing publically available Dial Before You Dig (DBYD) plans and site engineering drawings, and engaging suitably qualified underground service locators;
- intrusive drilling works and environmental sampling, including soil, groundwater, sediment and surface water sampling, in accordance with the requirements of the *SAQP* (ERM, 2014);
- laboratory analysis of selected soil, groundwater, sediment and surface water samples for particular constituents of potential concern (COPC) in accordance with the requirements of the *PESA* (ERM, 2014) and *SAQP* (ERM, 2014) and as outlined in *Section 4.8*; and
- the survey of newly installed and existing monitoring wells by a registered surveyor to Australian Height Datum (AHD) and Map Grid of Australia (MGA) coordinates.

An additional round of groundwater sampling to aid in delineation of any impact identified in the original round of groundwater sampling.

*Reporting*

- preparation and submission of weekly progress reports to Delta Electricity; and;
- preparation and submission of this Stage 2 ESA report at the completion of works.



### 1.3 MATERIALITY THRESHOLD

For the purposes of this report, a consistent approach regarding the materiality of a contamination issue has been adopted to that utilised in the *PESA* (ERM, 2014) which was as follows:

- ERM adopted a materiality threshold of AUD 0.5 M (+ GST if applicable) per contamination source;
- material costs are those costs for that item to meet relevant requirements of NSW Environment Protection Authority (EPA) under its current land use to remediate or manage the contamination issue. Remediation or management includes additional assessment, environmental monitoring, management, containment or other remediation measures; and
- any issue that ERM considers could have the potential to lead to prosecution by the regulatory authorities that could lead to significant business disruption or reputational impact has been considered material.

### 1.4 REPORT STRUCTURE

This Stage 2 ESA report has been prepared in general accordance with the NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997), as follows:

- *Section 1* - Introduction, background, objectives and scope of works;
- *Section 2* - Site setting including a summary of the Site history and Site conditions;
- *Section 3* - Data Quality Objectives (DQOs) for the works conducted;
- *Section 4* - Sampling and works methodologies for completing the investigation;
- *Section 5* - Results of the Stage 2 ESA works and Site-specific discussions and recommendations; and
- *Section 6* - Overall Discussion
- *Section 7* - Conclusions.

A full list of all references is also appended to this report.

## 1.5

*LIMITATIONS*

The findings of this report are based on the client-approved *SAQP* within the PESA (ERM, 2014) and the scope of work summarised in *Section 1.2* of this report. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials on the subject Site should not be interpreted as a guarantee that such materials do not exist on the Site.

This assessment is based on Site inspections conducted by ERM personnel, sampling and analyses described in the report, and information provided by people with knowledge of Site conditions.

All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

ERM is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client, its representatives and advisors and any investors, lenders, underwriters and financiers who agree to execute a reliance letter, and the client agrees that ERM's report or correspondences will not be, except as set forth herein, used or reproduced in full or in parts for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

## 2 BACKGROUND

### 2.1 SITE SETTING

#### 2.1.1 Site Identification

The Site location and the Site boundaries are presented in *Figures 1* and *2* of *Annex A*. A summary of site identification information is presented in *Table 2.1*.

**Table 2.1 Site Identification Details**

Site Detail	Description
Site Name	Vales Point Power Station
Site Location	Vales Road, Mannering Park, NSW
Coordinates	33°09'58"S and 151°32'34"E.
Area	Total area approximately 1700 hectares (Ha) <sup>1</sup> Operational area approximately 180 Ha
Owner	Delta Electricity (State Owned Corporation)
Local Government	Wyong Shire Council and Lake Macquarie City Council
Title Information <sup>2</sup>	The Site is sub-divided into 133 Lots within 51 separate Deposited Plans.
Zoning <sup>3</sup>	Under the Wyong Local Environmental Plan (LEP) 2012, most of the Site including the operational area, is zoned SP2 - Electricity Generating Works. Small portions of the Site, immediately south of Wyee Bay, are zoned E2 - Environmental Conservation. Areas designated W2 - Recreational Waterways are also located along the shoreline immediately north east and north west of the Site.  Under the Lake Macquarie LEP (2004), most of the Site is zoned 4(1) - Industrial (core). Areas on the periphery of the Site are zoned 9 - Natural Resources. Areas immediately surrounding Mannering Lake are zoned 7(1 and 2) - Conservation (primary and secondary) and 9 - Natural Resources. Properties zoned 1(1) - Rural were also located south west of Mannering Lake

1. Includes water canals, but excludes areas for associated mines.  
2. A full list of relevant title information is presented in *Annex C* of the *PESA* (ERM, 2014).  
3. Detailed zoning plans are presented in *Annex D* of the *PESA* (ERM, 2014).

A number of parcels of land within the Delta Electricity property boundaries are subject to mining leases and have been excluded from the Stage 2 scope of works. These areas have been considered to be potential offsite sources of contamination for the purposes of this assessment. These areas include;

- the Mandalong Mine delivery infrastructure adjacent to the Wyee rail coal unloader;
- the Mannering Colliery; and
- the Chain Valley Colliery.

These areas are detailed in *Figure 2* of *Annex A*.



A Microfiltration (MF) Plant is located at the Mannering Park Sewage Treatment Plant, immediately to the east of the Vales Point Site. It is understood that the MF Plant site is leased from Wyong Shire Council but that Delta Electricity owns the plant and equipment. This area has also been excluded from the Stage 2 scope of works.

### 2.1.2 *Site Features*

The Site is composed of the following key features:

- Vales Point Power Station and associated infrastructure. Vales Point Power Station was built in the 1960s as a four-unit station (the former A Station). These generating units were decommissioned in the late 1980s and the aboveground structures were being demolished at the time of this investigation. Vales Point now operates two 660 MW generating units, with a total generating capacity of 1320 MW of electricity (B Station);
- ash dam and associated pipelines for ash slurry and return water;
- coal storage area, including a truck wash down area, refuelling and maintenance area and settling ponds;
- conveyors transporting coal from nearby mines to the Site;
- waste disposal areas, including six former asbestos dumps;
- several water treatment systems, including a demineralised water plant, a chlorine plant, a reverse osmosis plant and an oil and grit trap;
- buffer lands surrounding the infrastructure described above, this includes State Environmental Planning Policy (SEPP) 14 listed wetlands to the north and west of the Site;
- the Wyee Rail coal unloader and Rail to Vales Point conveyor system (referred to as RV conveyor system, located to the north west of the operational area);
- a fly ash loading plant, owned and operated by Adelaide Brighton Cement (trading as Morgan Ash), to the south east of the operational area.

For the purpose of this assessment, the Site has been divided into 21 individual Areas of Environmental Concern (AECs), according to usage and the presence of potential sources of contamination, as follows;

- VA - B Station Operational Area;
- VB - former A Station Demolition Area;
- VC - Transformer Area;

- VD – Main Dangerous Good Store;
- VE – Contaminated Water Treatment Plant;
- VF – Waste Oil Storage Area;
- VG – Fuel Oil Installation;
- VH- Vehicle Refuelling Area;
- VI – Water Treatment Area;
- VJ – Coal Storage Area;
- VK – Mobile Plant Area;
- VL – Sewage Treatment Plant;
- VM – Chlorine Plant;
- VN – Wye Rail Coal Unloader;
- VO – Ash Dam;
- VP – Asbestos Landfills;
- VQ – Dust Line;
- VR – Wye Creek and Lake Macquarie Sediments and Surface Waters;
- VS – TransGrid Switchyard;
- VT – Fly Ash Plant
- VU – Site Buffers and Boundaries

The locations of the AECs are illustrated in *Figures 6.1 to 6.6 of Annex A*.

### **2.1.3** *Surrounding Environment*

The Site is surrounded by residential properties, remnant bushland and industrial properties, as well as waterways and areas of protected wetlands.

Key industrial uses in the area include:

- Chain Valley Colliery, approximately 750 m south east of the operational area;

- Mannering Colliery, approximately 1.8 km south of the operational area;
- the Mandalong coal mine delivery infrastructure located approximately 5 km to the north west; and
- a municipal sewage treatment plant, located approximately 1 km south west of the operational area, or immediately west of the Site boundary.

The closest residential areas to the Site include:

- Mannering Park, located north of the Site approximately 600 m from the operational area;
- Doyalson East, located approximately 300 m south of the Ash Dam
- Kingfisher Shores, approximately 2 km south east of the operational area and 1.6 km north east of the Ash Dam; and
- Wyee, located approximately 150 m east of the Ash Dam; and
- Wyee Point, located directly to the east of the north western leased mine area.

Rural residential properties are also located immediately to the north of the Ash Dam area and to the south of the Ash Dam area along Wyee Rd.

The Site is surrounded by areas of remnant bushland. Ecologically significant areas or recreational areas of note surrounding the Site include:

- State Environmental Planning Policy (SEPP) No. 14 protected wetlands located along the northern and eastern perimeter of Mannering Lake. The wetlands located on the eastern perimeter of Mannering Lake are also located within approximately 100 m of the Ash Dam toe drain system;
- SEPP 14 protected wetlands are also located on either side of Wyee Creek, approximately 1 km north of the Ash Dam;
- Tom Barney Oval is located immediately to the south west of the operational area. Based on discussions with the Site Environmental Officer, this oval is occasionally booked out for sporting events, and is regularly accessed by the public;
- Chain Valley Bay Reserve is located 1 km south of the operational area. Public use of this area appeared to be limited based on the lack of amenities and cleared areas; and
- Recreational fishing and boating activities are also undertaken in Lake Macquarie, including Mannering Bay, Chain Valley Bay and Wyee Bay.

## 2.2 ENVIRONMENTAL SETTING

### 2.2.1 Topography

The Site is located on the coast of Lake Macquarie, in between Wyee Bay and Chain Valley Bay. The operational area of the Site is generally flat and lies at an average elevation of approximately 3 m Australian Height Datum (AHD).

A ridge lies along the eastern boundary of the operational area and the Fuel Oil Installation, Fly Ash Plant, Coal Storage Area and Mobile Plant Area are located at between approximately 8 and 20 m AHD to the east and south of this ridge. To the west of the operational area the Site slopes upwards towards the Sewage Treatment Plant, at an elevation of approximately 10 m AHD.

The Ash Dam has been constructed within a natural valley, from the ridge to the south orientated to the north east, towards Mannering Bay, with a slight incline towards the north west, where it discharges into Wyee Creek.

The Wyee Rail Coal Unloader area lies at between approximately 18 and 50 m AHD, with a slope towards Lake Macquarie in the east.

### 2.2.2 Hydrology

The Site is located in the Lake Macquarie catchment area, with Lake Macquarie identified as the main local hydrological feature. Local waterways can be summarised as follows:

- Chain Valley Bay, located immediately to the north east of the Site;
- Mannering Bay with Wyee Bay immediately beyond, located immediately north of the Site;
- the Vales Point cooling water canal, which enters the Site at Chain Valley Bay and exits the Site at Wyee Bay;
- Chain Valley Retention Pond (also known as Lake Rodham), located approximately 300 m north east of the operational area, forms a part of the Site contaminated water management system;
- Wyee Creek and the Wyee Creek diversion channel is located along the north western site boundary and function as part of the Ash Dam overflow system;
- Mannering Lake, which forms part of the Vales Point Ash Dam;
- three settling ponds associated with the sewage treatment works on Site, located 500 m north west of the operational area; and

- five settling ponds associated with the coal storage area, approximately 700 m south west of the operational area.

The Vales Point Power Station uses coal as the fuel source to generate electricity and as a consequence produces a significant amount of by-product ash including furnace ash and fly ash. A large proportion of the ash which is produced from the Power Station is transported by wet sluicing via a pipeline to the Ash Dam. The disposal of ash within the Ash Dam is approved under the current Vales Point Power Station Environment Protection Licence (EPL) (Clause P1.3 of EPL 761).

Operational use of the dams and ponds listed above are outlined in the PESA (ERM, 2014).

In terms of surface water catchments on the Site, the topography indicates that surface water in the operational area of the Site and its surrounds, including the Fly Ash Plant, Fuel Oil Installation, Coal Storage Area and Sewage Treatment Plant generally flows to the north east, towards Lake Macquarie. Surface water within the operational area of the Site is channelled into a stormwater system that also discharges into Lake Macquarie via Lake Rodham.

The Ash Dam is located within a separate surface water catchment, which drains towards Lake Mannering to the north and Wyee Creek to the west. The Wyee Rail Coal Unloader area drains towards Lake Macquarie to the east.

### 2.2.3

#### *Geology*

##### *Regional Geology*

Based on a review of the *Gosford – Lake Macquarie 1:100 000 Provisional Geology Sheet* (Geological Survey of New South Wales, 2003), the Site operational area, including coal storage facility is located on the late Permian to early Triassic Munmorah Conglomerate formation of the Clifton Subgroup, Narrabeen Group. The Munmorah Conglomerate formation is comprised of conglomerate and medium to coarse-grained sandstone with minor siltstone and claystone (Geoscience Australia). The area comprising the Ash Dam is indicated as *man-made fill*, which refers to the construction of the ash dam, which is also underlain by the Munmorah Conglomerate. Areas immediately surrounding Mannering Bay and Wyee Bay tributaries are located on Quaternary sediments comprised of gravel and sand. The geology map for the area further indicates the presence of a number of north-west to south-east trending dykes that have intruded into the Munmorah Conglomerate.

These dykes have a regional spacing of approximately 0.2 km to 2 km with strike lengths in excess of 2km in the study area. The geology map further indicates the presence of a north-west to south-east striking fault with a south-westerly dip in the southern section of the ash dam.

Extensive underground coal mining activities are present in the region with target coal seams occurring in the late Permian Newcastle Coal Measures (a predominantly sandstone and coal sequence with lesser siltstone) that underlie the Clifton Subgroup. The Mannering Colliery, which undermined sections of the Site, targets the Great Northern and Fassifern coal seams. The Great Northern seam, which overlies the Fassifern seam, is located between approximately 140 to 155 metres below ground level (m bgl) in the area (Centennial Coal, 2009).

The local geology, as encountered during the drilling program undertaken as part of Stage 2 ESA, is discussed further in *Section 5.1* of this report.

The GHD (2012) *Delta Coast Land Management Manual* identified that there is a high risk of Potential Acid Sulfate Soil (PASS) conditions being present in a number of areas of the Site, including areas to the north of the Ash Dam and north east of the Power Block. A detailed delineation of PASS conditions within the Site is outside the scope of this assessment as they are a naturally occurring geological condition and unrelated to the operations on the Site. The presence of actual acidic ground conditions (which may have been created via the disturbance and oxidation of soils or modification of hydrogeological conditions) has been assessed via field observations (e.g. presence of jarosite) and the measurement of field parameters including pH and ORP during groundwater monitoring (refer to *Section 4.4*).

#### 2.2.4

#### *Hydrogeology*

##### *Regional Hydrogeology*

From a hydrogeology perspective, the sedimentary deposits can be categorised into the following units:

- Moderately permeable Quaternary sediments. While the geological map indicates that the sediments consist predominantly of sand and gravel, the available information from the intrusive works conducted at the Site indicate that there is a relatively high degree of fine grained material within the sediments (which have generally been described as sandy clay) which would constrain the permeability of the sediments.
- Moderate to relatively highly permeable conglomerate and sandstone, with permeability largely governed by the degree of fracturing in the conglomerate and sandstone.
- Low permeability siltstone and claystone.

- Moderate to relatively highly permeable coal seams within the Newcastle Coal Measures, with permeability governed by the degree of cleat development and fracturing within the coal seams.

Regional groundwater flow is expected to be towards Lake Macquarie, which is generally located to the north and north east of the Site. Temporal and localised variations in the direction of groundwater flow is considered likely given the low lying nature of the area and the presence of tidally influenced lakes, and the effects of increased hydraulic head created by the wet disposal ash dam.

The presence of dykes that have intruded into the Munmorah Conglomerate further present potential localised barriers to groundwater flow.

Details of hydrogeological conditions encountered during this Stage 2 ESA are summarised in *Section 5.2*.

### 2.2.5 *Groundwater Use*

The alluvial aquifers and shallow conglomerate and sandstone aquifers are the prime aquifers used in the region for stock and domestic supplies. Mining activities have extensively impacted the deep coal seam aquifers in the region, with extensive depressurisation of the coal seams having taken place in the region. Use of the coal seams aquifers for stock and domestic purposes are further restricted by the general high salinity of groundwater within the coal seams (Centennial Coal, 2009).

The NSW Natural Resource Atlas online bore register (accessed 17 December 2013) (NSW Government) identifies six groundwater bores within a 5 km radius of the Vales Point Power Station.

One groundwater bore, located approximately 700 m north of the Site in Mannering Park, is reportedly used for domestic purposes. The Standing Water Level (SWL) was recorded in this well at 5.5 m bgl. One groundwater bore, located approximately 1 km south west of the Power Station operational area and 600 m north of the Ash Dam is reportedly used for stock (poultry) watering purposes. The remaining four groundwater bores were reported to have been installed for test or monitoring purposes, with SWL recorded in three of these bores at 6 m bgl.

## 2.3 *SITE OPERATIONAL HISTORY*

Construction of the Power Station commenced in 1963 with construction of A Station, and B Station was completed in the early 1980s. Ancillary additions have been made to the Power Station since construction was completed in the early 1980s, including the construction of the sewage treatment area and additional settlement ponds. At the time of completion of the Stage 2 ESA, the A Station buildings were undergoing demolition and removal offsite.

Further detailed information regarding the history and operation of the Site, including historical aerial photographs, zoning and environmental approvals, licenses and management is presented in the *PESA* (ERM, 2014).

## 2.4 NSW EPA CONTAMINATED SITE RECORDS

The *Contaminated Land Management Record of Notices* is a public database of information regarding significantly contaminated land in NSW and is managed by the NSW EPA under the *Contaminated Land Management Act 1997* (CLM Act 1997).

At the time of this assessment, the Site had not been notified to the NSW EPA as being potentially contaminated. As part of the *Preliminary Baseline Contamination Assessment & Duty to Report Contamination Central Coast Region - Vales Point Power Station, Munmorah Power Station And Colongra Gas Turbine* (GHD, 2012) concluded that '*data reviewed as part of this baseline assessment does not indicate that notification is required*'. The following nearby properties were identified on the *NSW EPA List of Contaminated Lands Notified to the EPA* as properties where it has yet to be determined whether contamination is significant enough to warrant regulation under the *CLM Act 1997*:

- Mannering Colliery, Rutleys Road, Doyalson. Listed as EPA Site Management Class A, which indicated that assessment of the Site by the EPA was still in progress.
- Mannering Park Mini Mart, 70 Vales Road, Mannering Park. This property was identified as a service station. Listed as EPA Site Management Class B, which indicated that initial assessment of the Site by the EPA was still in progress.
- Parkview General Store, 2 Vales Road, Mannering Park. This property was identified as a former service station. Listed as EPA Site Management Class B, which indicated that initial assessment of the Site by the EPA was still in progress.

## 2.5 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The Site has undergone a limited number of historical intrusive soil and groundwater assessments which are described in the *PESA* (ERM, 2014). Works were generally completed to achieve compliance with EPL requirements and Underground Petroleum Storage System (UPSS) regulations.



Previous environmental investigations reviewed included:

- groundwater monitoring undertaken down-gradient of the ash dam by Aurecon in 2013. It is understood that additional groundwater monitoring wells were being installed by Aurecon in this area in late December 2013. The installation of these groundwater wells is part of an additional investigation of elevated metals concentrations in groundwater undertaken by Delta to comply with the Pollution Reduction Programme (PRP) notice on the POEO licence.
- surface water monitoring associated with licensed discharges as a condition of EPL 761;
- investigations associated with the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (UPSS Regulations) including routine groundwater monitoring by David Lane Associates and Douglas Partners between 2010 and 2013; and
- a preliminary (non-intrusive) baseline assessment of contamination issues (GHD, 2012). This included a preliminary contamination risk ranking, recommendations for contamination assessment, remediation or site management measures and a summary of Delta Electricity's obligations to report under the CLM Act 1997 based on the available information for the Site. The GHD (2012) report also identifies 14 areas of environmental concern (AECs) at the Site.

## 2.6

### *POTENTIAL AND KNOWN SOURCES OF CONTAMINATION*

Potential AECs were identified in the *PESA* (ERM, 2014) based upon current operations, in conjunction with a review of chemical and waste inventories, spill and incident information, a review of the limited soil and groundwater investigations completed to date and discussions with Delta Electricity staff.

Potential and actual AECs identified at the Site are presented in *Table 2.2*.

**Table 2.2** *Summary of Areas of Environmental Concern*

<b>I.D.</b>	<b>Name</b>	<b>Description</b>
VA	B Station Power Block	The primary source of potential contamination identified is potential leaks or spills of lubricating oil and fuel at various points which may migrate through cracks in concrete or via damaged drains. A major fire event fire occurred in the 5A Air Heater in 2011 and Aqueous Film Forming Foam (AFFF) constituents (used in firefighting foams) are therefore potential COPCs. The network of drains which runs beneath the power block may also be a source of impact.
VB	Former A Station	The primary sources of potential contamination within the former A Station area are associated with historic lubricating oil and fuel leaks at various points.
VC	Transformer Area	Potential for PCBs associated with transformer operation and oil storage in ASTs. In 2006 the Vales Point Unit 6A 330/22kV Generator Transformer failed, resulting in an explosion and fire. Aqueous Film Forming Foam (AFFF) constituents are therefore potential COPCs.
VD	Main Dangerous Goods Store	Storage of flammable liquids, oils, lubricants, greases and corrosive liquids.
VE	Contaminated Water Treatment Plant	Treatment of the water captured by the contaminated water drain system at the Power Station. Water entering the facility could contain a range of potential contaminants including fuels, chemicals, coal and ash.
VF	Waste Oil Storage Area	Storage of waste oil in drums and containers and oily rags.
VG	Fuel Oil Installation	Storage of diesel in 2 ASTs.
VH	Vehicle Refuelling Depot	Underground Storage Tanks (USTs) (current and decommissioned) used to store unleaded petrol and diesel.
VI	Water Treatment Plant Area	Significant quantities of sulfuric acid, sodium hydroxide, hypochlorite, ammonia and ferric sulfate are stored in ASTs in this area.
VJ	Coal Storage Area	Leaching of contaminants from the coal stockpiled on open ground may affect groundwater. Dirty water from the truck washing facility and contaminated stormwater runoff.
VK	Mobile Plant Maintenance and Refuelling	Potential contamination sources include contaminated stormwater runoff from this area and leaks or spills of oils and solvents.
VL	Sewage Treatment Plant	Potential contamination sources associated with the sewage treatment plant include leakage from the sewage treatment systems, associated pipework or retention basin into the underlying soil or groundwater. Sewage can contain a variety of contaminants, including nitrates, metals, trace concentrations of toxic chemicals and salts.
VM	Chlorine Plant	The water treatment plant area is banded but potential damage to the bunds or bund linings surrounding some of the ASTs or corrosion of the associated pipework may have led to uncontrolled releases of chemicals to stormwater or directly to the subsurface via cracks or other preferential pathways. It is also noted that the transformer oil storage filtration building, associated with the TransGrid Switchyard is located immediately adjacent to the Chlorine Plant.

COMMERCIAL IN CONFIDENCE

I.D.	Name	Description
VN	Rail Coal Unloader Area and Coal Conveyors	Storage and transport of coal and coal wastes.
VO	Ash Dam	The Ash Dam receives ash from Vales Point via slurry pipelines and dirty water from the coal handling area and effluent pit in the Power Station. Prior to Munmorah Power Station ceasing operations, the Vales Point Ash Dam was also used for the storage of fly ash produced at Munmorah Power Station. Various other solid wastes are also directed to the Ash Dam in accordance with EPL 761.
VP	Asbestos Landfills	Six known dump sites are located within the catchment of the Ash Dam.
VQ	Dust Line	Aboveground dust pipeline transferring dust from the operational area of the Site and the Ash Dam contains asbestos.
VR	Sediments in Surrounding Waterways	Lake Macquarie sediments and surface water have been identified as a potential AEC due to the discharges that the Lake receives from the Power Station including cooling water, treated effluent, overflow and potential seepage from the Ash Dam, stormwater and groundwater
VS	TransGrid Switchyard	TransGrid Switchyard, although not operated by Delta Electricity, is a potential AEC due to the storage/use of transformer oil which may have historically contained PCBs. The Vales Point Fire Training Area is located adjacent to the TransGrid Switchyard
VT	Fly Ash Plant Area	Operations associated with the management of fly-ash by-products.
VU	Buffer Lands and Boundaries	General baseline conditions and offsite migration.

## 2.7 SENSITIVE RECEPTORS

The sensitive receptors identified in association with the Site include:

- indoor and outdoor human health receptors in the form of onsite and offsite workers;
- intrusive maintenance workers both on and offsite;
- offsite residential receptors, living in the vicinity of the operational area or Ash Dam;
- recreational users of Mannering Bay, Wyee Bay and Chain Valley Bay;
- recreational users of Tom Barney Oval;
- aquifers beneath the Site and nearby potable and stock watering wells; and
- ecological receptors, including those in the vegetated buffer lands and aquatic environments of Mannering Bay, Wyee Creek, Wyee Bay and Chain Valley Bay, including SEPP 14 protected wetlands along the northern and eastern perimeter of Mannering Lake, and either side of Wyee Creek.

Onsite water bodies that are used for operational purposes, including the Ash Dam, the cooling water canal and the various water retention, treatment and settling ponds, are not considered to be ecological receptors.

The *Delta Coast Land Management Manual* (GHD, 2012) provides information on the uses of the various areas of the Site, including operational areas (including those allocated for power generation activities, ash storage areas, coal conveyors, canals, pipelines and coal storage areas) and buffer lands. Within the buffer lands are areas of vegetation and decommissioned and operational coal mines. GHD (2012) indicates that threatened flora and fauna has been identified in the buffer lands surrounding the Ash Dam and the Wyee Rail Coal Unloader.

### 3 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in *Section 1.1* of this report. The DQOs have been prepared in line with the seven-step approach outlined in National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPC, 2013), and with reference to relevant guidelines published by the NSW EPA, ANZECC/ARMCANZ, and NEPC.

The DQO process is validated, in part, by the Quality Assurance and Quality Control (QA/QC) procedures and assessment, summarised in *Section 5.5* and presented as *Annex F* of this report.

The seven steps of the DQO process, and how they were applied to this assessment, are presented in the following sections.

#### 3.1 STEP ONE: STATE THE PROBLEM

A statement of the problem is provided by the particular objectives of the assessment as stated in *Section 1.1*. Background information is provided by *Sections 1* and *2* of this report, and by the conceptual site model (CSM) which was initially developed as part of the *PESA* (ERM, 2014).

#### 3.2 STEP TWO: IDENTIFY THE DECISION

##### *Decision Statements*

The principal decision to be made is:

- Are there actual or potential material contamination issues relevant to the sale of the Vales Point Power Station?

Additional decisions to be made include:

- Is there sufficient data to provide an environmental baseline at the time of the transaction?
- What is the nature and extent of soil, surface water and groundwater impact on or beneath the Site?
- What is the nature and extent of sediment and surface water and impact to surrounding water bodies?
- Does the impact at the Site represent a risk to human health, based on the current and continued use of the site?

- Is the impact at the Site likely to warrant notification and / or regulation under the *NSW Contaminated Land Management Act, 1997*?
- Is material remediation likely to be required?

Adopted screening values which informed these decisions are identified below in *Section 4.10*.

### 3.3 *STEP THREE: IDENTIFY INPUTS TO DECISION*

The inputs required to make the above decisions are:

- existing relevant environmental data, taking into consideration the number and location of existing soil and groundwater sampling locations, the construction of existing groundwater monitoring wells and the date of the most recent sampling events;
- direct measurement of environmental variables including soil/sediment type, soil gas concentrations, odours, staining or other visual evidence of potential contamination, water strike, groundwater level and water quality parameters;
- collection and laboratory analysis of soil, groundwater, sediment and surface water samples for identified COPCs;
- field and laboratory QA/QC data; and
- comparison of data against adopted screening values (outlined in *Section 4.10*).

### 3.4 *STEP FOUR: DEFINE THE STUDY BOUNDARIES*

#### *Spatial Boundaries*

The Site location and description is provided in *Section 2*. Figures identifying the Site boundary and investigation areas are presented in *Annex A*. The investigation included the surface and subsurface soils as well as groundwater beneath the site but the vertical boundaries of the investigation were limited to the depth of borehole advancement.

#### *Temporal Boundaries*

Temporally, the study is intended to provide a baseline assessment of the nature and extent of contamination at the Site, and in relevant receiving environments, as at or near the time of completion of the proposed transaction to the extent practicable.

*Constraints within the Study Boundaries*

Constraints on the delivery of the objectives of the Stage 2 ESA program within the study boundaries included:

- location of underground or overhead services or infrastructure;
- the condition of existing monitoring wells; and
- access restrictions, such as flooded areas.

**3.5*****STEP FIVE: DEVELOP A DECISION RULE***

The DQOs were designed to facilitate the collection of adequate soil, sediment, surface water and groundwater data to address the decisions in Step 2 of the DQO process. Decision Rules were therefore developed both in relation to evaluating the nature and extent of soil, surface water and groundwater impact on or beneath the Site and the adequacy of the data set, as outlined herein.

**3.5.1*****Sample Locations***

Where these constraints were identified, boreholes and monitoring wells were moved (where possible to nearby locations) and where drilling was not feasible, surface soil samples were collected to assess direct contact pathways. Additionally monitoring wells that could not be successfully drilled to depth were converted to soil bores.

In areas which could not be accessed for drilling or where the abovementioned constraints prevented the installation of groundwater monitoring wells, monitoring wells were located around the perimeter of the inaccessible area where possible. The distribution of monitoring wells around the perimeter of AECs was then evaluated to assess whether it provided an understanding of groundwater conditions up-gradient and down-gradient to assess the potential extent of contamination and identify potential for migration of contaminants.

Deviations from the Stage 2 program were tracked during the course of the investigation via the weekly progress spreadsheet and were communicated to the relevant project stakeholders.

A summary of the investigation locations proposed and installed and evaluation of the adequacy of spatial coverage of the Site is presented in *Section 4.1* of this report.

### 3.5.2 *Field and Laboratory QA/QC*

The reliability of soil, sediment, surface water and groundwater data was assessed based on comparison with acceptable limits for field and laboratory QC samples outlined in relevant guidelines made or approved under the *CLM Act 1997*, including the *ASC NEPM* (NEPC, 2013).

In the event that acceptable QC limits were not met, the field observations of the samples were reviewed for obvious sources for the non-conformance (such as an error in sampling, preservation of sample(s) or heterogeneity of sample(s), etc.) If obvious sources of the non-conformance were not identified, liaison with the laboratories was undertaken to identify the issue that had given rise to the non-conformance.

In the event that acceptable QC limits were not met, the impact of these non-conformances was also evaluated in relation to adequacy of the data set facilitate the collection of adequate soil, sediment, surface water and groundwater data to address the decisions in Step 2 of the DQO process.

The acceptable limits on decision errors applied during the review of the results are discussed in *Section 3.6* and a summary of the QA/QC procedures is presented in *Section 4.9* and *Annex F* of this report.

### 3.5.3 *Screening Values*

Groundwater, sediment and surface water data, along with the maximum, minimum, mean, standard deviation and 95% upper confidence limit (UCL) of the mean concentration (if required) were compared to screening values to provide a screening value assessment of potential risks that may be associated with the SPR linkages that have been identified for this Site.

The adopted screening values have generally been sourced from guidelines made or approved under the *CLM Act 1997*, which includes the *ASC NEPM* (ASC NEPC, 2013). Where alternative sources have been utilised, appropriate justification has been provided. The specific assessment levels adopted are presented alongside the analytical data in the summary tables presented in *Tables 4a-u and 5a-u* of *Annex B*. The screening values are discussed in detail in *Section 4.10*.

Individual soil, groundwater, sediment and surface water data, along with the maximum, minimum, mean, standard deviation and 95% upper confidence limit (UCL) of the mean concentration (if required) were compared to adopted screening values.



Exceedance of adopted screening values does not necessarily indicate the requirement for remediation and/or a risk to human health or the environment. The approach to the screening of the data gathered in this assessment has generally been to initially adopt conservative assessment values. Any exceedances of these values have then been evaluated on a case by case basis, in light of the specific characteristics of the individual sample and the area of the Site from which the sample was collected. The extent of the impact, the potential for receptors to be exposed to the impact, and regulatory compliance was also considered.

If individual or 95% UCL concentrations exceeded the adopted screening values and these exceedances were evaluated to be associated with a potentially complete SPR linkage, these results were considered to be indicative of actual or potential material contamination issues relevant to the sale of the Site, as per DQO Step 2 (*Section 3.2*).

#### **3.5.4 *Appropriateness of Laboratory Limit of Reporting***

Comparison of the laboratory Limit of Reporting (LOR) to the screening values has been undertaken to confirm that the screening values are less than the laboratory LOR. In the event that the screening value is greater than the laboratory LOR, consideration has been given to the significance of this result, with specific reference to addressing the Decisions in Step 2 of the DQO process.

An evaluation of the screening values with reference to the laboratory LORs is provided in *Section 5.5*.

#### **3.6 *STEP SIX: SPECIFY LIMITS ON DECISION ERRORS***

The primary output from Step 6 of the DQO Process is a set of acceptance criteria that the collected data should achieve in order to minimise the possibility of either making a decision error or failing to keep uncertainty limits with acceptable levels (US EPA , 2006).

The acceptable limits on decision errors applied during the review of the results has been based on the Data Quality Indicators (DQIs) of Precision, Accuracy, Representativeness, Comparability and Completeness (PARCC) in accordance with (NHMRC and NRMCC, 2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013, Schedule B3 - Guideline on Laboratory Analysis of Potentially Contaminated Soils*.

The potential for significant decision errors was also minimised by:

- completing a robust QA/QC assessment of the validation data and application of the probability that 95% of data will satisfy the DQIs, therefore a limit on the decision error would be 5% that a conclusive statement may be incorrect (see *Section 4.9*);
- assessing whether appropriate sampling and analytical density has been achieved for the purposes of providing a baseline of soil, sediment and groundwater conditions at the point of transaction (see *Section 4.1*); and
- ensuring that the screening values adopted were appropriate for the ongoing use of the site as a power generation facility (see *Section 4.10*).

### 3.7

#### ***STEP SEVEN: DEVELOP (OPTIMISE) THE PLAN FOR COMPLETING THE WORKS***

The DQOs have been developed based on a review of existing data and discussions with Delta Electricity. If data gathered during the assessment indicated that the objectives of the assessment programme were not being met, the sampling design (including sampling pattern, type of samples and analytes) was adjusted accordingly using feedback (where necessary) from project stakeholders.

## 4 INVESTIGATION METHODOLOGY

### 4.1 SAMPLING LOCATIONS

Based on a review of the available data, the most appropriate sampling design to achieve the stated project objectives was considered to be primarily based on a judgemental (targeted) sampling program, which provides good coverage of operational areas and minimal additional sampling undertaken to provide spatial coverage for low risk areas of the site (e.g. buffer lands) or to fill material data gaps within the CSM.

Given the scale of the site, different sampling densities were adopted based on estimated contamination risk and logistical constraints of different areas of the site. The sampling approach was generally in accordance with the NSW EPA *Sampling Design Guidelines* (NSW EPA, 1995) which does not recommend a minimum number of sampling points for sites larger than 5 ha. As recommended in these guidelines, the Site has been divided into smaller areas of concern based on a review of historical activities and identified potentially contaminating activities. Judgemental sampling was adopted to target potential sources for all AECs.

It is noted that intrusive investigations were limited to areas where access and site activities enabled investigations to occur without unacceptable health and safety risks to personnel and/or unacceptable disruption to site operations. The sampling plan was discussed with site management prior to the commencement of works to assess this risk and was subject to alteration.

The main constraints on the implementation of the Stage 2 program were the presence of subsurface and overhead utilities and access restrictions within the buffer zone. Where these constraints were identified, the Decision Rules outlined in Step 5 of the DQO process (*Section 3.5.1*) were implemented

The proposed Stage 2 program included soil samples from 188 locations and groundwater samples from 133 locations. The completed Stage 2 program included soil samples from 173 locations and groundwater samples from 89 locations. An evaluation of the proposed and completed investigation locations for each AEC is provided in *Table 8 of Annex B* and on this basis it is considered that the number and distribution of completed boreholes and monitoring wells is sufficient for characterising soil and groundwater conditions for the purpose of this baseline assessment.

Deviations from the Stage 2 program were tracked during the course of the investigation via the weekly progress spreadsheet and were communicated to the relevant project stakeholders. An extract of the weekly progress spreadsheet is provided below as *Table 4.1* which highlights locations proposed but abandoned and the monitoring wells proposed but changed to soil bores during the course of the investigation.

**Table 4.1 Vales Point Power Station – Locations Abandoned or Changed to Soil Bores**

AEC	Location ID	Location Type	Change Details	Comments
VA	VA_MW07	Monitoring Well	Abandoned	Abandoned due to proximity of overhead and underground services. Surface is concrete hardstand.
VA	VA_MW08	Monitoring Well	Abandoned	
VA	VA_SB04	Soil Bore	Abandoned	
VB	VB_MW04	Monitoring Well	Abandoned	Abandoned due to proximity to critical services (stormwater and sewer which could not be identified using CAT GPR). Surface is concrete hardstand.
VB	VB_MW06	Monitoring Well	Abandoned	Locations are in an area containing deep stormwater drains and thick concrete rails used to move transformers. Not possible to drill in this location. Not possible to move location as area is confined by canal and former A station
VB	VB_MW07	Monitoring Well	Abandoned	Abandoned due to proximity to critical services (High Voltage Kiosk) that are not shown on plans. No safe location to move to.
VB	VB_SB02	Soil Bore	Abandoned	Abandoned due to the presence of multiple services in the area. No safe area to move location to.
VB	VB_SB04	Soil Bore	Abandoned	Locations are in an area containing deep stormwater drains and thick concrete rails used to move transformers in the area. Not possible to drill in this location. Not possible to move location as area is confined by canal and former A station
VC	VC_MW03	Monitoring Well	Changed to shallow soil bore	Shallow soil sample collected only due to the presence of multiple services in the area. No safe area to move location to.
VC	VC_SB02	Soil Bore	Abandoned	Abandoned due to proximity to stormwater pipes and anchor points for transformer rails. Concrete in this area likely to be 600 mm thick to support the weight of transformers
VE	VE_MW01	Monitoring Well	Changed to shallow soil bore	Shallow soil sample collected only, due to the presence of multiple services in the area. No safe area to move location to due to the presence of a slope on one side and services on 3 other sides.
VI	VI_MW03	Monitoring Well	Abandoned	Abandoned due to proximity of services, overhead cable trays and underground services.

COMMERCIAL IN CONFIDENCE

AEC	Location ID	Location Type	Change Details	Comments
VI	VI_SB01	Soil Bore	Changed to shallow soil bore	Changed to a shallow soil bore due to the presence of multiple services in a small area.
VI	VI_SB02	Soil Bore	Abandoned	Abandoned due to proximity of services, overhead cable trays and underground services.
VL	VL_SB01	Soil Bore	Changed to shallow soil bore	Changed to a shallow soil bore due to the proximity of main electrical services
VM	VM_MW02	Monitoring Well	Changed to shallow soil bore	Changed to a shallow soil bore as there is no safe location to advance a monitoring well. The location is in a 2m wide area between a canal and a building and contains multiple services.
VM	VM_MW05	Monitoring Well	Changed to shallow soil bore	Changed to a shallow soil bore due to the proximity of services, overhead cable trays and underground services.
VM	VM_SB01	Soil Bore	Changed to shallow soil bore	Changed to a shallow soil bore as there is no safe location to advance a monitoring well. The location contains multiple services.
VN	VN_MW04	Monitoring Well	Abandoned	Abandoned due to flooding in the area and therefore lack of access
VN	VN_MW11	Monitoring Well	Abandoned	
VO	VO_MW16	Monitoring Well	Changed to soil bore	Changed to soil bore due to the proximity to the Jemena gas pipeline
VT	VT_MW02	Monitoring Well	Abandoned	Abandoned as there is no safe location to drill due to topography and large truck turning circle.
VT	VT_MW03a	Monitoring Well	Changed to soil bore	Changed to a soil bore due to the location being within the turning circle of trucks.
VU	VU_MW11	Monitoring Well	Changed to shallow soil bore	Changed to a shallow soil bore due to bushy terrain and lack of access for drilling equipment.
VU	VU_MW18	Monitoring Well	Changed to soil bore	Changed to soil bore due to the proximity to the Jemena gas pipeline.
VU	VU_MW19	Monitoring Well	Abandoned	

Notes: extract from Weekly Progress Report

Final investigation locations are presented in *Figures 6.1 to 6.6 of Annex A*.

## 4.2 *SITE INSPECTION*

The work areas of the Site were inspected and the soil and groundwater sampling locations were marked out to target identified Site features and potential contamination sources. At the same time as clarifying the investigation locations, sub-surface utilities were marked out using an appropriately qualified service locator. Ground penetrating radar (GPR) and Cable Avoidance Tool (CAT), along with DBYD plans and Site engineering drawings were utilised to identify underground services and utilities.

## 4.3 *SOIL INVESTIGATION*

### 4.3.1 *Soil Sampling Procedure*

Soil investigation and sampling works were undertaken in general accordance with ERM's Standard Operating Procedures (SOPs). The location and number of sampling locations are presented within *Figures 6.1 to 6.6 of Annex A* and listed by AEC (Area VA – Area VU) in *Table 1 of Annex B*.

Where practicable, all boreholes were advanced to an initial depth of 1.5 m bgl using either hand augering or Non-Destructive Digging (NDD) techniques in accordance with ERM's sub-surface clearance procedures. Drilling and soil sampling of subsurface material beyond 1.5 m bgl, were undertaken using a Geoprobe® drilling rig with a continuous push tube sampler where conditions allowed. Other methods of borehole advancement included solid stem mechanical augering, and air rotary methods, where bedrock was encountered or subsurface material could not be penetrated using push tube methods.

Regardless of the drilling methodology adopted, soil sampling techniques which minimised the potential for loss of volatiles were utilised. Where the collection of undisturbed samples was not possible (e.g. during hand augering) the potential for loss of volatiles was minimised by sampling from larger clods and minimising the duration between sample excavation and placement into the sample container.

Field screening was conducted in accordance with ERM's SOPs using a photo-ionisation detector (PID) fitted with a 10.6 eV lamp, calibrated at the beginning of each working day. Calibration certificates are presented in *Annex E*. Where practicable, soil was collected at 0.5 m depth intervals (or where significant changes in lithology were identified) to 2 m bgl and at 1 m depth intervals thereafter. Soil samples were placed in a zip lock bag, sealed and screened for the presence of ionisable volatile compounds. Where the presence of volatiles or other impact was suspected, additional samples were collected.

Soil properties were logged by an appropriately trained and experienced field scientist in general accordance with *Australian Standard AS 1726-1993, Geotechnical Site Investigations* (Standards Association of Australia, 1993). Representative soil samples were collected for laboratory analysis at selected locations, based on visual and/or olfactory evidence of the following:

- multiple layers of fill material;
- changes in the soil profile; and
- potential impact.

Soil samples were collected, to the extent practicable, in accordance with techniques described in *Australian Standard AS4482-2005* (Parts 1 and 2) to maintain the representativeness and integrity of the samples. Soil samples for laboratory analysis were collected from either the hand auger or directly from the push tube core. No samples were collected for laboratory analysis from solid flight augers, unless otherwise stated within borehole logs presented in *Annex D*. The frequency and nature of field QA/QC samples collected during the assessment works are summarised in *Annex F*.

Soil samples were generally labelled using the nomenclature presented in *Table 4.2* (below).

**Table 4.2** *Sample Naming Protocol*

Sample	Identification
Sample taken from shallow hand auger soil bore or deeper soil bore, SB01 at depth of 0.5 m bgl, within work area VA	VA_SB01_0.5
Sample taken from depth of 5 m bgl from a soil bore to be installed as Monitoring Well MW07, within work area VA	VA_MW07_5.0
Sediment samples taken from SS01 within work area VM at a depth of 0.25 m below the surface of the sediment.	VM_SS01_0.25
Surface water samples taken from SW01 within work area VG	VG_SW01

Sample jars were sealed and immediately placed in an insulated cooler, on ice, and stored to reduce the potential for loss or degradation of volatile compounds. Samples were shipped under chain of custody documentation to the analytical laboratory. Trip blanks and field blanks were used to assess whether cross contamination occurred during the sample collection process.

No potential asbestos containing material (ACM) was identified at the surface or during the investigation works, and there were no ACM fragments submitted for analysis. Discrete 500 mL samples of soil were collected in snap lock bags during NDD for laboratory analysis for asbestos fibres. These samples were submitted to the laboratory for asbestos identification and (where identified) quantification (%w/w analysis) in accordance with the WA DOH guidelines (WA DOH, 2009).

#### 4.3.2 *Decontamination Procedure*

Down-hole drilling and non-single use sampling equipment was decontaminated by initially removing any residual soil with a stiff brush and then washing the equipment in a 2% Decon 90 solution and rinsing with potable water.

#### 4.3.3 *Soil Bore Reinstatement*

Upon completion, soil bores were backfilled and the surface covering reinstated to match existing.

#### 4.3.4 *Management of Waste Materials Generated During Drilling*

Non-liquid waste materials generated during drilling works were stored on-site in stockpiles inside a temporary bund in a designated area near the Vales Point Power Station Ash Dam, prior to disposal within the Ash Dam in accordance with environmental licence conditions.

### 4.4 *GROUNDWATER INVESTIGATION*

#### 4.4.1 *Monitoring Well Construction*

Selected boreholes were converted to groundwater monitoring wells in accordance with ERMs SOPs. The groundwater monitoring well locations are presented in *Figures 6.1 to 6.6 of Annex A*. The following methodology was implemented to install new monitoring wells:

- wells were constructed of heavy duty 50 mm diameter class 18 uPVC with factory slotted screen (0.4 mm slots) and plain well casing. Where practicable, the wells were screened within groundwater bearing strata in accordance with ERMs SOPs with consideration of potential regional and seasonal fluctuations of the water table and constructed to allow the potential ingress of Non-Aqueous Phase Liquids (NAPL);
- following drilling, the well casing and screen were inserted into the drill casing. Washed and graded filter sand was poured into the annulus between the well screen and casing wall, ensuring that the sand covered the entire screened level and extended approximately 0.5 m above the top of the well screen;
- bentonite granules were then poured on top of the sand to an approximate thickness of 1 m and hydrated to effectively seal off the well from surface water or perched/shallow groundwater inflows; and



- the remaining annulus from the top of the seal to the base of the concrete was grouted with cement/bentonite grout to within 0.25 m of the surface and the final 0.25 m reinstated with concrete and a heavy duty well cover (flush gatic cover or raised monument as appropriate). The well casings were sealed with air-tight, lockable 'Envirocaps'.

Following monitoring well installation, each well was developed using a submersible 12V electric 'Typhoon' pump to remove any fine or granular materials or contaminants potentially introduced during drilling and to optimise hydraulic connectivity with the surrounding aquifer. Wells were considered developed when either a minimum of 10 well volumes had been removed, when water quality parameters had stabilised or if the well was developed dry prior to this.

Monitoring well construction details are presented within the borehole logs in *Annex D*.

#### 4.4.2 *Groundwater Purging and Sampling Protocol*

Groundwater purging and the sampling of newly installed monitoring wells generally occurred at least one week following monitoring well installation and development, to allow subsurface conditions to stabilise. Both new and existing monitoring wells were purged and sampled as outlined below.

The presence of odours was noted, where applicable, following removal of the well cap and prior to purging. Any odours were described by reference to their intensity and character.

Following a period of no pumping (as a minimum 24 hours), wells were dipped to gauge the depth to groundwater, and the potential presence and depths of NAPLs.

Monitoring wells were purged using either a thoroughly decontaminated peristaltic or micro purge pump under low flow conditions, where hydrogeological conditions allowed, until sufficient water has been removed to obtain stabilised measurements of pH, conductivity, oxidation-reduction potential (ORP), temperature and dissolved oxygen which was calibrated prior to use. The stabilisation criteria are as described below.

**Table 4.3** *Water quality parameter stabilisation criteria*

<b>Parameter</b>	<b>Stabilisation criteria</b>
pH	± 0.1 pH units
Electric Conductivity (EC)	± 3% (µS/cm or mS/cm)
Temperature	± 0.5°C
Oxidation Reduction Potential (ORP)	± 10 mV
Dissolved Oxygen (DO)	± 0.3 mg/L

It is noted that both ORP and DO are typically slower to stabilise than the other parameters. Where ORP and DO did not stabilise, therefore, greater weight was given to pH and EC as the stabilising parameters.

Low-flow sampling techniques were used to obtain samples that were representative of the local groundwater environment at the Site. The inlet of the low-flow purge pump was placed approximately 50 cm from the base of the well in order to obtain a representative sample. Water samples were collected using equipment dedicated to each monitoring well to reduce the potential for cross-contamination between sampling locations.

The following order of sampling was adopted:

- samples to be analysed for volatile compounds placed into 40 mL amber vials;
- samples to be analysed for semi-volatile compounds placed into one 100 mL solvent washed amber bottles and one, 1 litre solvent washed amber bottle (for inter-laboratory duplicate samples);
- samples to be analysed for dissolved metals filtered through disposable 0.45 µm filters and placed in 60 mL plastic bottles preserved with nitric acid, or 60 mL unpreserved plastic bottles for ultra-trace metals;
- samples to be analysed for ferrous iron filtered through disposable 0.45 µm filters and placed in 60 mL plastic bottles preserved with hydrochloric acid; and
- samples to be analysed for major cations and anions placed in an unpreserved 250 mL plastic bottle.

Light Non-Aqueous Phase Liquid (LNAPL) was not observed at any of the sampling locations or detected with an interface probe.

The containers were filled, where practical, to minimise headspace, before being sealed and appropriately labelled. Labels included the following information:

- sample identification number;
- sampler;
- job number; and
- date of collection.

Samples were sealed and immediately placed in a cooler on ice to minimise potential for degradation of the sample. All samples were shipped under chain of custody documentation to the analytical laboratories.

#### 4.4.3 *Waste Material Generated During Groundwater Development/Purging*

With approval from Delta Electricity, waste water from development and purging of groundwater monitoring wells was disposed of into the Ash Dam.

#### 4.5 *SURVEYING*

All soil bore investigation locations were digitally located by field staff with a handheld Global Positioning System (GPS) unit. Additionally, all groundwater monitoring wells were surveyed by a registered surveyor (Monteith and Powys) to AHD for elevation and MGA coordinates for location. Survey data is presented in *Annex J*. The elevation of the highest point of the top of the uPVC well casing was surveyed to facilitate appropriate groundwater elevation calculations and groundwater flow direction interpretations.

#### 4.6 *SEDIMENT INVESTIGATION*

Sediment samples were collected from within Wyee Bay, Chain Valley Bay, Wyee Creek and the Wyee Creek diversion channel, and Mannering Bay.

Sediment samples were collected in general accordance with the methodologies outlined in *CSIRO Handbook for Sediment Quality Assessment* (2005). Sediment was collected from each sampling location with either a stainless steel van Veen grab sampler or a polycarbonate push tube.

The grab sample was inspected and if it was deemed to be of acceptable quality i.e. van Veen fully closed, the sediment-water interface undisturbed with no evidence of loss of fines, and sufficient sample volume, the sediment was transferred to a container and homogenised.

The samples collected using polycarbonate push tubes were laid out within a one metre core catcher and split into multiple depths for sampling.

If there was insufficient sample volume in a single grab or core sample, but the sample was otherwise of acceptable quality, sediment from multiple grabs/cores was included in the sample.

Sample handling and labelling procedures were consistent with those adopted for soil sampling and those outlined in *Handbook for Sediment Quality Assessment* (CSIRO, 2005). The sediment volume, colour, grain size, odour, and presence of debris, organic matter, or biota were noted. Sediment samples were transferred to laboratory supplied glass jars for chemical analysis and 500 mL 'snaplock' bags for grain size analysis. Care was taken to minimise head space in the sample jars to reduce the potential for loss of volatile COPCs. The samples were stored on ice and transported under chain of custody to the analytical laboratory.

The van Veen, core and all other equipment used in the process of collecting the sediment samples were decontaminated (using the same procedures as those previously outlined for soil sampling equipment) between sampling locations.

#### 4.7 *SURFACE WATER INVESTIGATION*

Surface water samples were collected from Lake Macquarie and Wye Creek. Surface water samples were collected approximately 1 m from the bottom using a van Dorn sampler. If there were any locations where water depth was not sufficient for van Dorn deployment, samples were collected by hand, holding the sampling container beneath the surface of the water with the container facing upstream, while avoiding disturbing substrate.

Sample containers were sealed and immediately placed in a cooler on ice to reduce the potential for degradation of organic compounds. The samples were transported under chain of custody documentation to a NATA accredited laboratory at the end of each day.

A calibrated water quality meter was used to measure field parameters including pH, conductivity, oxidation reduction potential, temperature, total dissolved solids (TDS), and dissolved oxygen. Observations of the general condition of the surface water and its surrounds were recorded during sampling.

#### 4.8 *LABORATORY ANALYSIS*

The laboratories used for the investigations were accredited by the National Association of Testing Authorities (NATA), Australia. The primary laboratory used for soil and groundwater analysis was ALS Environmental Pty Ltd (ALS). Inter-laboratory duplicate samples were analysed by a secondary laboratory, Envirolab Services Pty Ltd (Envirolab). The analytical methods used by each laboratory are provided in the laboratory certificates in *Annex H*.

Soil, sediment, groundwater and surface water samples were analysed for the following COPCs:

- metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury, selenium and zinc);
- Total Recoverable Hydrocarbons (TRH); and
- Polycyclic Aromatic Hydrocarbons (PAHs).

Additional contaminants of concern were analysed within individual AECs to target specific sources of contamination or if required based on observations made in the field.

These contaminants include:

- Polychlorinated Biphenyls (PCBs) - related to use of PCB-containing transformer oil on site;
- Volatile Organic Compounds (including benzene, toluene, ethylbenzene and xylenes - BTEX); and
- Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA) - to target areas where fire retardants may have been used or stored;
- Asbestos (soil only).

Selected soil samples were also analysed for the following to allow for adoption of appropriate screening values:

- Total Organic Carbon (TOC);
- Particle Size Distribution (PSD);
- Electrical Conductivity (EC); and
- pH and Cation Exchange Capacity (CEC).

#### 4.9 *QUALITY ASSURANCE/QUALITY CONTROL*

A detailed QA/QC report including field procedures, laboratory methods and an analysis of QA/QC results from the investigation is provided in *Annex F*. QA/QC information incorporating inter-laboratory and intra-laboratory duplicates, rinsate samples and trip spike/blank samples are also tabulated in *Annex F*.

In summary, the QA/QC data reported by ALS for soil and groundwater samples and field duplicate results were generally free of systematic and method biases and were assessed to be of sufficient quality for the purposes of this investigation.

There were some instances where the adopted screening values were less than the laboratory LOR. These potential non-conformances are discussed in *Section 5.5* of this report.

#### 4.10 *DATA SCREENING*

Individual soil, groundwater, sediment and surface water data, along with the maximum, minimum, mean, standard deviation and 95% upper confidence limit (UCL) of the mean concentration (if required) were compared to adopted screening values.

The screening values adopted for the Site are designed to provide a screening value assessment of potential risks that may be associated with the SPR linkages that have been identified for this Site. The specific assessment levels adopted are presented alongside the analytical data in the summary tables presented in *Annex B*. The approach to the screening of the data gathered in this assessment has generally been to initially adopt conservative assessment values. Any exceedances of these values have then been evaluated on a case by case basis, in light of the specific characteristics of the individual sample and the area of the Site from which the sample was collected.

The adopted screening values have generally been sourced from guidelines made or approved under the *CLM Act 1997*, which includes the *ASC NEPM (ASC NEPC, 2013)*. Where alternative sources have been utilised, appropriate justification has been provided.

#### 4.10.1 *Soil Screening Values*

Soil data was assessed against investigation criteria published in the NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999*, Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater (ASC NEPC, 2013), including;

- Health Investigation Level (HIL) - 'D' Commercial/Industrial
- Health Screening values (HSLs) for Vapour Intrusion and Direct Soil - 'D' Commercial/Industrial
- Ecological Investigation / Screening values (EILs/ESLs) - for areas of ecological significance and commercial industrial areas (as applicable).
- The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE, 2011) *Technical Report No. 10* HSLs for Vapour Intrusion and Direct Contact - Intrusive Maintenance Workers (labouring within shallow trenches).

The EILs/ESLs for commercial/industrial areas have been adopted across the Site and the EILs/ESLs have been adopted only in areas where threatened and/or endangered species have been identified (i.e. AECs including the Ash Dam, Wyee Rail Coal Unloader area and Site Buffers and Boundaries).

Laboratory analysis for pH and CEC is required to establish site specific EILs/ESLs, and an assessment of background conditions is necessary. The establishment of EILs/ESLs was undertaken, and sample locations in buffer/boundary locations were utilised in establishing background conditions. The details of the calculations used to establish Site specific EILs/ESLs are provided in *Annex I*.

The ASC NEPM (2013) also provides EILs for aged and fresh contamination for the metal constituents Ni, Cr III, Cu, Zn and Pb. For the purposes of EIL derivation, a constituent incorporated in soil for at least two years was considered to be aged. Given that the Site has been operational since the 1960s and no significant individual release events of these metals have been recorded, any identified impacts are likely to primarily represent aged contamination. The EILs for aged contamination have been adopted.

The ASC NEPM (2013) and CRC CARE (2011) *Health screening values for petroleum hydrocarbons in soil and groundwater* provide Health Screening values (HSLs) for soil and groundwater impacts located at depths from 0 to 4+ m bgl in soil types ranging from sand to clay and Health Investigation Levels (HILs) for shallow soil impacts. The screening values for sandy soils have been adopted across the Site, as a conservative approach. The significance of any exceedances of the HILs/HSLs have been evaluated on a case by case basis, with reference to the use of the area of identified potential concern.

#### 4.10.2 *Groundwater and Surface Water Screening Values*

Water data has been assessed against investigation criteria published in NEPC (NEPC, 2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater including;

- Australia and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC and ARMCANZ, 2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* - Trigger values for marine water, level of protection 95% species;
- National Health and Medical Research Council and National Resource Management Ministerial Council (NHMRC and NRMCMC, 2013) *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*;
- National Health and Medical Research Council (NHMRC, 2008) *Guidelines for Managing Risks in Recreational Waters* - note that these will be applied with reference to (ANZECC/ARMCANZ, 2000) and (NHMRC and NRMCMC, 2013) referenced above; and
- Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE, 2011) *Technical Report No. 10, Health Screening values for Petroleum Hydrocarbons in Soil and Groundwater*. HSLs for Vapour Intrusion - 'D' Commercial and Intrusive Maintenance Worker (Shallow Trench).

The groundwater beneath the Site is not considered to be an ecological receptor of concern in itself, but the trigger values for the protection of 95% of marine species have been adopted across the Site to evaluate potential risks associated with the discharge of groundwater into the marine environment of Lake Macquarie.

Groundwater is not extracted for potable use across the Site. The National Health and Medical Research Council (NHMRC) (2011) *Australian Drinking Water Guidelines*, however been adopted across the Site to evaluate the requirement to report groundwater contamination across the Site, in accordance with the DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. The potable use of groundwater has been considered for areas in proximity to residential areas - namely AEC VO (Ash Dam) and VU (Site Buffers and Boundaries).

#### 4.10.3 *Sediment Screening Values*

Sediment quality data have been assessed against screening values published in:

- (ANZECC and ARMCANZ, 2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality - Interim Sediment Quality Guidelines (ISQGs)*, or the equivalent Commonwealth of Australia (DEWHA, 2009) *National Assessment Guidelines for Dredging*. (ANZECC/ARMCANZ, 2000).

Where no Australian endorsed assessment levels are available reference has been made to the following National Institute of Public Health and the Environment (RIVM) document:

- (RIVM, 2001) *Ecotoxicological serious risk concentrations for soil, sediment and (ground)water - updated proposals for first series of compounds*.

It is noted that these guideline values have no regulatory standing in NSW and hence these values have been adopted to provide a high level evaluation of potential ecological risk and have not been used to assess the duty to report requirements under the Contaminated Land Management (CLM) Act 1997.

#### 4.10.4 *Screening values for Perfluorooctane Sulfonate (PFOS) And Perfluorooctanoic Acid (PFOA)*

##### *Soil*

No authoritative screening criteria have been published within Australia for assessing chronic risks to human health from either perfluorooctane sulfonate (PFOS) or Perfluorooctanoic acid (PFOA) in soils. As such, a literature review and web-based research were conducted to identify conservative screening values for these COPCs.



Values of 6 mg/kg and 16 mg/kg were adopted for PFOS and PFOA in soil respectively, based on recently published US EPA Region 4 guidance *Emerging Contaminants Fact Sheet –PFOS and PFOA, May 2012* (US EPA, 2009c) for residential land-use settings. Whilst these criteria are acknowledged to be designed for application to a more sensitive land-use, they are considered appropriate to inform requirements for more detailed, or site-specific, risk characterisation.

It is noted that these guideline values have no regulatory standing in NSW and hence these values have been adopted to provide a high level evaluation of potential ecological risk and have not been used to assess the duty to report requirements under the CLM Act (1997).

#### *Groundwater*

No authoritative guidelines have been published in Australia for PFOS or PFOA in groundwater, protective of human health or the environment.

Whilst groundwater is not used on-site for potable supply, in the absence of a more appropriate guideline, a health screening values of 0.2 and 0.4 µg/L for PFOS and PFOA respectively in groundwater have been adopted. These values are proposed by the US EPA (2009).

Whilst groundwater beneath the Site is not considered to be an ecological receptor in itself, ecological impacts may be associated with the discharge of groundwater into the adjacent marine environment of Wyee Creek and Lake Macquarie. In the absence of a local guideline, an ecological screening value of 7.2 µg/L has been adopted for PFOS. This value was recommended by (RIVM, 2010) as the Maximum Acceptable Concentration (MAC) for marine ecosystems.

It is noted that these guideline values have no regulatory standing in NSW and hence these values have been adopted to provide a high level evaluation of potential ecological risk and have not been used to assess the duty to report requirements under the CLM Act (1997).

#### **4.10.5** *Screening Values For Selenium*

ANZECC and ARMCANZ (2000) provides a low reliability marine trigger value for selenium, which has been adopted as the ecological screening value for surface water and groundwater in this assessment.

In the absence of ANZECC and ARMCANZ (2000) screening values for selenium in sediment, the British Columbia Ministry of Environment (2001) *Ambient Water Quality Guideline* marine sediment screening value for selenium of 2 mg/kg has been adopted in this assessment. This value is designed to be protective of selenium bioaccumulation through the food chain and direct selenium toxicity.

It is noted that these guideline values are not regulatory criteria in British Columbia and have no regulatory standing in NSW and hence these values have been adopted to provide a high level evaluation of potential ecological risk and have not been used to assess the duty to report requirements under the CLM Act (1997).

5 **RESULTS AND DISCUSSION**

5.1 **SITE GEOLOGY OBSERVATIONS**

A generalised description of the lithology and geology encountered at the Site is presented in Table 5.1.

Alluvial sediments, ranging from clayey sand to clay in texture with sandy clay predominating in the majority of bore locations, were encountered at relatively shallow depths in some sections of the Site, generally in close proximity to Mannering Creek, Mannering Bay and Lake Macquarie. Highly weathered conglomerate with minor sandstone and siltstone of the Munmorah Conglomerate formation was encountered across the majority of the Site. The highly weathered nature of the Munmorah Conglomerate is attested by the fact that the majority of monitoring well bores were able to be drilled with solid flight augers or hollow stem augers following refusal with push-tube methods.

Moderately weathered to unweathered rock was encountered in ten locations (including VA\_MW03, VA\_MW06, VL\_MW02, VN\_MW03, VN\_MW10, VO\_MW08, VU\_MW08, VU\_MW09, VU\_MW13 and VU\_MW14) within the Munmorah Conglomerate. These bores were generally completed using the rotary air percussion method. Depths to the unweathered conglomerate in these locations generally varied from 5 to 6 m bgl, and the unweathered sedimentary rock extended to 15 m bgl (the maximum depth of the investigation). Dykes identified on the geology map for the area (see Section 2.2.3) were not encountered during the drilling program.

**Table 5.1 Generalised Field Lithology Descriptions**

<b>Lithological Unit</b>	<b>Description</b>	<b>Depth<sup>1</sup> (m bgl)</b>
Hardstanding	Concrete and asphalt generally in good condition (present in some locations within the operational area).	0 - up to 0.35
Fill	Fill material of variable composition, varying from sandy gravel to gravelly sandy clay (present in some locations within the operational area).	0 - up to 2.8
Alluvial Sediments	Generally poorly sorted sediments, ranging from clayey sand to clay with sandy clay predominating in the majority of bore locations.	0 - up to 6
Munmorah Conglomerate	Highly weathered conglomerate with minor sandstone, siltstone and mudstone. The conglomerate contained a heterogeneous gravel lithology, with matrix (>15%) generally consisting of silty sand. The Munmorah Conglomerate underlies the majority of the site. Relatively unweathered rock was encountered at depths varying from 7.5 to 15 m bgl.	Highly weathered: 0 - up to 13.  Moderately weathered to unweathered: 3.4 - ≥15
1. Given the variation in topography across the Site, depths and lithologies may vary across the site.		

Detailed descriptions of the Site lithology and geology as observed at each location during the investigation are presented in the borehole logs in *Annex D*.

## 5.2 GROUNDWATER FIELD OBSERVATIONS

Newly installed monitoring wells were generally gauged and sampled at least 72 hours after well installation and development to allow subsurface conditions to stabilise. Groundwater gauging and sampling was completed for newly installed and existing monitoring wells between 20 March and 1 April 2014.

Groundwater gauging data is presented in *Table 2 of Annex B*. Groundwater was encountered at depths ranging from the near surface (001 m bgl in VO\_MW12) to 9.80 m bgl, or -0.13 m AHD to 38.67 m AHD in the alluvial sediments and the highly weathered Munmorah Conglomerate. Potentiometric water levels in the moderately weather to unweathered sedimentary rock, where groundwater storage and flow is expected to be governed mainly by fractures within the rock matrix, varied from 1.24 bgl to 9.73 m bgl, or 0.57 m AHD to 27.02 m AHD. For monitoring wells drilled into fractured rock, stabilised water levels were well above water strikes where observed as well as above the interface between the highly weathered and less weathered conglomerate, and the groundwater levels in these monitoring wells are considered to present potentiometric water levels.

The interpolated groundwater contouring indicates that groundwater flow in the alluvial sediments and highly weathered Munmorah Conglomerate is generally in a northerly direction towards Lake Macquarie for the majority of the site (see *Figure 7*) and to the east north-east from the Wyee rail coal unloader area. Localised variations in groundwater flow direction occur at the ash dam as governed by local variations in topography, with the groundwater gauging indicating a westerly groundwater flow component downgradient of the south-western most section of the ash dam, towards the east downgradient of the south-easterly section of the ash dam and toward the north and Mannering Bay downgradient of the north-western section of the ash dam. Groundwater contours for the monitoring wells intersecting the deeper lying fractured conglomerate have not been interpolated as the number and spread of monitoring wells in the deeper lying fractured rock do not facilitate the interpolation of groundwater contours. Groundwater flow in this unit is however expected to be towards Lake Macquarie, located to the north for the majority of the Site and to the east north-east for the Wyee rail coal unloader area.

Field records for groundwater well development and sampling are presented in *Annex E*. Groundwater field parameters recorded during purging of wells prior to sampling are presented in *Table 3 of Annex B*.

An additional round of groundwater sampling was undertaken on 27 May, 2014. Specific wells were sampled in order to delineate previously identified impacts, and to provide further data, specifically:

- Additional sampling of VP\_MW01 where Benzene was detected a concentration greater than the adopted drinking water screening levels, to assess temporal variation.
- Sampling of VB\_MW03. Due to a communication error, samples from this well had not previously been analysed.
- Sampling of surface water near the 'toe drain' area of the Ash Dam to provide further data on metals concentrations in this area.

### 5.3 *AREAS OF ENVIRONMENTAL CONCERN (AEC) SUMMARY*

This section discusses the analytical results of the soil, sediment, surface water and groundwater samples collected in each of the Areas of Environmental Concern (AEC's). It is noted that metals have been identified at concentrations exceeding the adopted screening criteria in groundwater within all AECs and that background conditions contribute to these impacts in some areas of the site. As such, groundwater metal data has not been discussed in the context of each individual AEC; a consolidated discussion of this issue is presented in *Section 5.4*.

#### 5.3.1 *VA - B Station Power Block*

##### *Background*

The main generating plant area of the Vales Point Power Station operates two 660 MW generating units (B Station) and associated infrastructure including;

- coal feed systems;
- two coal-fired boilers;
- turbine house incorporating two steam turbines;
- two 660 MW generator units (units 5 and 6);
- emergency diesel generator; and
- one chimney stack (serving two boilers).

Electricity is produced using pulverised coal-fired boilers. The coal is ground in pulverising mills before being blown into the boiler in a stream of pre-heated air. The coal burned in the boiler furnace chamber produces the heat necessary to convert water circulating in the boiler tubes into high-pressure steam.

The electricity generation process involves high pressure steam passing through cylinders and spinning the shaft of each generator and inducing alternating current. After use, the steam is condensed back to water and is recycled.

The primary source of potential contamination identified in this area is potential leaks of lubricating oil and diesel fuel at various points around the plant. Observations during the Site visit confirmed this oil loss in various areas. In particular during the Phase 1 investigation, surface staining and/or oily surface water was noted in the area of the emergency generator diesel tank and oil unloading area for the turbine oil storage tanks.

A major fire event also occurred in the 5A Air Heater in November 2011. Although there is no information to suggest that Aqueous Film Forming Foam (AFFF) was used for firefighting, in conjunction with this event, PFOS and/or PFOA have been included as COPC for this area.

Within the power block, leaks and spills are generally captured in internal contaminated water drains and transferred to the oil and grit separator and Chain Valley Retention Basin, located in the north eastern corner of the site. However, there remains potential for seepage of leaks and spills through cracks in the concrete around infrastructure.

Various small workshops are present throughout the power block which service specific areas. Many of these workshops hold small quantities of lubricating oils, solvents and similar chemicals. During the Site works dangerous goods were generally observed to be appropriately stored within bunded or contained areas. However, staining of the concrete surface in various areas of the workshops was observed, and there remains potential for spills and leaks to penetrate the concrete through cracks and joints into the subsurface.

The network of drains which runs beneath the power block also represent a potential contamination source to soil and groundwater due to the subsurface nature of this network and the various COPCs (including corrosive chemicals) likely to be currently present or having been historically present as a result of the collection and conveyance of spills and leaks in various areas. In addition to the dedicated stormwater and contaminated water drainage systems, a sluiceway which transports ash and coal fines collected in various surface drains in the power block runs through the power block, eventually discharging into the Ash Dam.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the B Station Power Block. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Methodology and Investigation Field Observations*

A total of nine soil investigation bores, six of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. Due to the potential health and safety risks from the operational nature of this area investigation locations were distributed around the perimeter of the AEC to identify COPC that may have migrated from within this AEC.

Sampling locations were distributed around the AEC as presented in *Figure 6.3 of Annex A*. Relevant borehole logs are presented within *Annex D*.

Monitoring wells VA\_MW07 and VA\_MW08, located in the north west corner of the investigation area, were abandoned due to the proximity to both overhead and underground utilities. Soil bore VA\_SB40 was also abandoned due to the proximity of overhead and underground utilities. However, the position of monitoring well VC\_MW01 in the adjacent transformer area (AEC VC) provides sufficient interception of potential off-site migration of COPCs from the north west corner of the B Station Power Block AEC.

Black staining and an unknown odour were observed at VA\_SB01 at a depth of 0.2 to 0.3 m bgl. There were no other field indicators of contamination, such as staining or odours detected at any depth during the sampling process within this AEC. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 8 parts per million by volume (ppm v) (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.2*.

**Table 5.2** *Field Observations Summary – AEC VA*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VA_MW01	3	None	0-0
VA_MW02	14	None	0-8.0
VA_MW03	12	None	0-3.4
VA_MW05	7.5	None	0-0.2
VA_MW06	11.5	None	0-1.6
VA_SB01	0.95	Black staining and odour at 0.2- 0.3 m bgl	0-1.0
VA_SB02	1.05	None	0
VA_SB03	3.0	None	0-1.6

Groundwater samples were collected from six groundwater monitoring wells within the B Station Power Block AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements were generally indicative of freshwater conditions, with a range between 583-714  $\mu\text{S}/\text{cm}$ , with the exception of two monitoring wells, VA\_MW01 (2168  $\mu\text{S}/\text{cm}$ ) and VA\_MW05 (1417  $\mu\text{S}/\text{cm}$ ) which were indicative of brackish groundwater conditions. pH measurements were typically neutral to slightly acidic (pH 5.98 to 6.78) with the exception of acidic conditions indicated in VA\_MW05 (pH 4.44) located on the northern boundary.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4a of Annex B*

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC with the exception of carcinogenic PAHs at VA\_SB01 at a depth of 0.25 m bgl. Concentrations of TRH were also reported above the laboratory LOR in this sample however did not exceed the adopted human health screening values. Measured concentrations of PFOS were detected above the laboratory LOR in two soil samples at VA\_MW05 at a depth of 0.1 m bgl and VA\_MW02 at a depth of 0.1 m bgl, however the measured concentrations of PFOS did not exceed the adopted screening value.

Measured concentrations of COPCs were below the adopted ecological screening values in all soil samples collected from within this AEC with the exception of zinc at VA\_MW02 at a depth of 0.1 m bgl, nickel at VA\_MW02 at a depth of 2 m bgl and benzo(a)pyrene at VA\_SB01 at a depth of 0.25 m bgl.

The majority of the remaining measured concentrations were below the corresponding laboratory LOR with the exception of various heavy metals, however all of these concentrations were below the adopted screening values.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5a of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.



Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed. The exceptions to this were some detections of metals within groundwater across this AEC.

It is noted that PFOS/PFOA were not detected in groundwater beneath this AEC. These chemicals would have been expected if the extensive use of AFFF had occurred in this area.

#### *Discussion*

One exceedance of the adopted human health screening values was identified in a soil sample collected from VA\_SB01, with no further exceedances identified in soil samples collected from within this AEC.

The shallow fill material at VA\_SB01 at a depth of approximately 0.2 to 0.3 m bgl was observed to be heterogeneous gravelly sandy clay with black staining and an unknown odour.

The corresponding laboratory results for VA\_SB01 at a depth of 0.25 m bgl exceeded the human health screening value for carcinogenic PAHs, and exceed the ecological screening value for benzo(a)pyrene. Based on the laboratory results, it is likely that the odour observed was related to the presence of hydrocarbons in soil at this depth. The PAH impacts in soil at this location appear to be localised and limited to the shallow soil, as vertically delineated by laboratory results from VA\_SB01\_0.8. It is noted that the soil bore VA\_SB01 was abandoned at a depth of 0.9 m bgl at refusal on conglomerate, and that water was observed to be infiltrating at the base of the bore.

As discussed in Schedule B7 of the ASC NEPM (2013), benzo(a)pyrene (and other carcinogenic PAHS) are not considered sufficiently volatile to be of significance and inhalation exposures associated with particulates outdoors and indoors are expected to be of less significance than ingestion of soil. The majority of this AEC is covered in hardstanding, including the area in the proximity of the soil bore VA\_SB01, and therefore the exposure to this chemical could only occur through direct contact with the soil or exposure to dust. The measured concentration of PAH constituents in groundwater in all monitoring wells within this AEC were below the laboratory LOR and the adopted screening values. Therefore, it is considered that the detected concentrations of PAH constituents in soil at VA\_SB01 are not contributing to impacts in groundwater. On this basis, the PAH impacts identified in this location are considered unlikely to represent a significant risk to human health or the environment under the ongoing operational use of the Site.

Zinc and nickel concentrations marginally exceeded the adopted ecological screening values in shallow soil sampled from VA\_MW02 at a depth of 0.1 m bgl and 2 m bgl, respectively. These exceedances are likely attributed to the composition of fill materials placed in this area. It is noted that the B Station Power Block AEC is an operational area and is primarily covered in hardstanding. These impacts are therefore considered unlikely to represent a significant risk to the terrestrial environment assuming ongoing commercial industrial use in the current or similar configuration.

### 5.3.2

#### *VB - Former A Station*

##### *Background*

Vales Point A Station was built in the 1960s as a four-unit station. These generating units were decommissioned in 1989 and since then have undergone partial dismantling, with most of the internal plant items removed. During ERMs Site works the A Station buildings were undergoing demolition and removal offsite.

Prior to the decommissioning and demolition of A Station, this facility was comprised of;

- four coal-fired boilers;
- a turbine house incorporating four steam turbines;
- four generator units (units 1 to 4), with a total capacity of 875 MW;
- an auxiliary bay; and
- two chimney stacks (serving four boilers).

ERM understands that once the demolition is complete, the A Station basement level concrete will remain and in other areas the ground surface will be covered with recycled crushed concrete and left vacant.

The primary sources of potential contamination within the former A Station area are associated with historic lubricating oil and fuel leaks at various points around the plant and leaks from the oily water drainage network.

Intrusive investigations have not previously been completed within the former A Station. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area. Due to the high probability of encountering unmarked subsurface utilities historically associated with the operation of the facility, the investigation locations targeting this AEC have therefore been focused around the perimeter of the AEC to identify COPC that may have migrated from this AEC.

*AEC Methodology and Investigation Field Observations*

A total of five soil investigation bores, four of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater.

The sampling locations advanced within this AEC are presented on *Figure 6.5* of *Annex A*. Relevant borehole logs are presented within *Annex D*.

During the sampling process, no field indicators of contamination, such as staining or odours were detected within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis of 13.3 and 23.5 ppm v (isobutylene equivalent) at VB\_MW03 at a depth of 3.8 to 4.0 m bgl were not associated with visual or olfactory evidence of contamination. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 23.5 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.3*.

**Table 5.3** *Field Observations Summary - AEC VB*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VB_MW01	4	None	0
VB_MW02	4	None	0-1.5
VB_MW03	5.1	None	0-23.5
VB_MW05	6	None	0-1.0
VB_SB01	0.95	None	0-1.0

Groundwater samples were collected from four groundwater monitoring wells within the former A Station AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3* of *Annex B*. Electrical conductivity (EC) measurements ranged from 570-2006 µS/cm, which indicates fresh to slightly brackish groundwater conditions. pH measurements were slightly acidic at VB\_MW02 and VB\_MW05 (pH of 5.77 and 5.5, respectively) and acidic at VB\_MW01 and VB\_MW03 (pH of 3.92 and 4.28 respectively). The acidic pH at VB\_MW01 and VB\_MW03 may indicate the presence of acid sulfate soil conditions within the western part of this AEC.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC, however a slight sulfurous odour was detected during the gauging in VB\_MW03. A summary of field observations from the groundwater sampling works are presented within *Table 3* of *Annex B*.

*Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.b of Annex B*.

Concentrations of TRH and PAHs were reported above the laboratory LOR in soil samples at VB\_MW01 at a depth of 0.5 m bgl and VB\_MW02 at a depth of 0.5 m bgl; however all concentrations were below the adopted human health screening values. Concentrations of PFOS were reported above the laboratory LOR in the soil sample collected from VB\_SB01 at 0.5 m bgl however the detected concentration was below the adopted screening value.

Measured concentrations of COPCs were below the adopted ecological screening values in the soil samples collected from within this AEC with the exception of TRH C<sub>10</sub>-C<sub>16</sub> (excluding naphthalene) in the soil sample collected from VB\_MW01 at a depth of 0.5 m bgl.

The majority of remaining measured concentrations of COPCs in soil samples analysed were below the corresponding laboratory LOR with the exception of various heavy metals, however all of these concentrations were below the adopted screening values.

Asbestos was not detected in soils sampled within this AEC.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.b of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Chlorinated hydrocarbons including cis-1,2-dichloroethene, trichloroethene and tetrachloroethene were detected above the laboratory LOR in VB\_MW02, however all concentrations were below the adopted screening values.

Phenol was detected in VB\_MW03 above the laboratory LOR however the concentration detected was below the adopted screening values.

Measured concentrations of PFOS and PFOA were detected groundwater samples collected from VB\_MW01 and VB\_MW02. The concentrations of PFOA were below the adopted screening value. The concentrations of PFOS in groundwater at VB\_NW02 exceeded the adopted human health screening value.

*Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC.

The adopted ecological screening value for TRH C<sub>10</sub>-C<sub>16</sub> (excluding naphthalene) was exceeded in one soil sample collected from within this AEC at VB\_MW01. The ground surface at VB\_MW01 is covered in concrete hardstanding and this area is used for miscellaneous operational activities, including the storage of skip bins and spare parts. On this basis, TRH impact in this area is not considered to represent a significant risk to the terrestrial environment.

Measured concentrations of TRH, chlorinated hydrocarbons, phenol and PFOS were reported above the laboratory LOR in groundwater samples from the AEC. The concentrations did not exceed the adopted screening values, with the exception of PFOS at VB\_MW02 which exceeded the adopted human health (drinking water) screening value. On the basis that groundwater is not extracted for potable use within the vicinity of the operational area of the Site, this identified PFOS impact is not considered to represent a significant risk to human health .

It is noted that the source of the TRH, chlorinated hydrocarbon and PFOS impact was not identified during this assessment and that the presence of underground and overhead services prevented the installation of sampling locations within this AEC and limited the installation of sampling locations around the boundaries of this AEC. It is therefore considered possible that further TRH, chlorinated hydrocarbon and PFOS impacts may be present within the former A Station area.

### 5.3.3

#### *VC - Transformer Area*

The Transformer Area is located to the north west of the B Station Power Block, adjacent to the inlet canal for the Power Station. There are four transformer vessels present on the Site, containing significant quantities of insulating oil. Spare transformers 1 and 2 and the temporary turbine oil storage ASTs, with a capacity of 115 000 L are also located immediately to the east of the transformer vessels. Refuse oil storage AST No. 2, with a capacity of 35 000 L is also located to the east of the transformer vessels. The AEC is entirely covered by a concrete hardstand, with a thickness of approximately 600 mm to withstand the weight of the transformers.

Due to the age of the facility, PCB additives would have historically been used in insulating oils in transformers, capacitors and light fittings within the main operational areas. Data room documents indicate that low concentrations of PCBs (up to 4.1 µg/g) were detected in transformer oil samples collected from the vessels by Aurecon in 2012 and 2013.

In November 2006 the Vales Point Unit 6A 330/22kV Generator Transformer failed, resulting in an explosion and fire. A large volume of water and fire retardants were reported to have been used in the emergency operations associated with this event. This event is likely to have released transformer oil to the surrounding area. The potential use of firefighting foam during this fire also indicates that PFOS and/or PFOA are also COPCs.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Transformer Area. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Investigation Methodology and Field Observations*

A total of four soil investigation bores, all of which were completed as groundwater monitoring wells, were advanced within this AEC, and two surface soil samples were collected, to assess potential impacts to soil and groundwater.

Three groundwater monitoring wells were located at the eastern end of the transformer AEC, targeting COPCs of the historical transformer fire and the off-site migration of materials and one groundwater monitoring well was located to the western end of the transformer AEC. The distribution of sampling locations is presented in *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

No field indicators of contamination, such as staining or odours, were noted within this AEC. No staining or unusual odours were detected through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis did not exceed 2.5 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

Field observations during the drilling works are summarised in *Table 5.4*.

**Table 5.4** *Field Observations Summary - AEC VC*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VC_MW01	6.3	None	0-0.4
VC_MW02	4	H2S odour at 4.2 m bgl	0-2.5
VC_MW04	4	None	0-1.3
VC_MW05	4	None	0-1.9
VC_SB03	0.1	None	0

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements indicated fresh water conditions at monitoring wells VC\_MW01, VC\_MW04 and VC\_MW05 and saline conditions were encountered within the north eastern location VC\_MW02. Moderately acidic to neutral groundwater conditions were recorded in this AEC (pH of 4.81 - 5.86).

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.c, Annex B*.

Measured concentrations of COPCs were below the adopted human health and ecological screening values in all soil samples collected from within this AEC. Measured concentrations of various heavy metals exceeded the corresponding laboratory LOR in a number of soil samples collected from within this AEC however all concentrations were below the adopted screening values. TRH was also reported at a concentration above the laboratory LOR in VC\_MW03 at a depth of 0.1 m bgl, however the concentration was below the adopted ecological and human health screening values.

Concentrations of PFOS were detected above the laboratory LOR in three soil samples at VC\_MW02 at a depth of 0.5 m bgl, VC\_MW05 at a depth of 1 m bgl and VC\_SB03 at a depth of 0.1 m bgl, however all concentrations were below the adopted ecological and human health screening values. The measured concentrations of asbestos fines and fibrous asbestos (0.005 %w/w) in the soil sample from VC\_MW03 at a depth of 0.1 m bgl exceeded the adopted human health screening value of 0.001 %w/w).

Chrysotile asbestos detected in one soil samples from this AEC at VC\_MW03 at a depth of 0.1 m bgl and the laboratory report identified "one piece of friable asbestos cement sheeting approximately 8 x 7 x 2mm".

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.c of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of COPCs were below the laboratory LOR in all groundwater samples collected from within this AEC with the exception of some metals.

PFOS was not detected in groundwater within this AEC.

#### *Discussion*

No exceedances of the adopted ecological or human health screening values were identified in soil samples collected from within this AEC with the exception of asbestos fines and fibrous asbestos in one shallow soil sample at VC\_MW03 at a depth of 0.1 m bgl. These asbestos impacts are located in an area of open ground and may represent a risk to the health of employees if potential exposure pathways are not managed appropriately.

Exceedances of the adopted screening levels identified within this AEC were limited to metals, as discussed in *Section 5.4*.

### **5.3.4 VD – Main Dangerous Goods Store**

#### *Background*

The Main Store compound is located on the south western edge of the operational area of the Power Station and comprises of a covered section and an open lay-down area covered in concrete hardstand. This area is used for storage of various materials used throughout the Power Station, including dangerous goods.

The Main V1 Store Building houses minor quantities (< 200 L) of flammable liquids and oils in cabinets. An outdoor compound area is located to the south of the Main Store and has a roofed enclosure used to house drums of lubricants and greases. A storage area located within a brick structure to the south east of the Main Store is used to house gases and corrosive liquids.

No soil or groundwater investigations are known to have been completed within this AEC to date. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Investigation Methodology and Field Observations*

A total of seven soil investigation bores, five of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.5* of *Annex A*. Relevant borehole logs are presented within *Annex D*.

During the sampling process, no field indicators of contamination, such as staining or odours were detected within this AEC however a slight sulfurous odour was detected in VD\_MW05. No staining or unusual odours were detected at any depth through the sampled soil profile.



Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 6.3 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.5*.

**Table 5.5** *Field Observations Summary - AEC VD*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VD_MW01	3.5	None	0-1.2
VD_MW02	3.5	None	0-6.3
VD_MW03	3.5	None	0-1.1
VD_MW04	4	None	0-0.9
VD_MW05	6.3	Sulfur odour	0-5.9
VD_SB02	3.0	None	0-1.3

Groundwater samples were collected from five groundwater monitoring wells within the Main Dangerous Goods Store Area AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*.

Electrical conductivity (EC) ranged from 37100  $\mu\text{S}/\text{cm}$  in VD\_MW01, to 3806  $\mu\text{S}/\text{cm}$  in VD\_MW03 indicating saline groundwater conditions. pH levels were indicative of acidic conditions within all wells with a pH ranging between 4.32 and 5.32. No evidence of hydrocarbon impact was detected in groundwater however a slight sulfurous odour was detected during the gauging in VD\_MW05.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.d of Annex B*.

Measured concentrations of all COPCs were below the adopted screening values in all soil samples collected from within this AEC. The majority of measured concentrations were below the corresponding laboratory LOR. Concentrations of various heavy metals were above the corresponding laboratory LORs in a number of soil samples collected from within this AEC however all concentrations were below the adopted screening values.

Asbestos was not detected in soils sampled from within this AEC.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.d of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed. The exceptions to this were some detection of metals (discussed in *Section 5.4*) and phenol. Concentrations of total phenols were detected at VD\_MW03 above the laboratory LOR, however the detected concentration was below the adopted ecological screening value.

*Discussion*

No exceedances of the adopted ecological or human health screening values were identified in soil samples collected from within this AEC.

Exceedances of the adopted screening levels identified within this AEC were limited to metals, as discussed in *Section 5.4*

**5.3.5 VE – Contaminated Water Treatment Plant***Background*

The Contaminated Water Treatment Plant treats the water captured by the contaminated water drainage system at the Power Station. Water entering the facility could potentially contain a range of contaminants including fuels, lubricants, chemicals, coal and ash.

All the elements of the Contaminated Water Treatment Plant are located to the north east of the operational area near the inlet canal within a grassed area. The facility comprises a sedimentation basin with an oil skimmer ('hairy ropes') and a separate secondary oil water separation section. Waste generated in the facility is understood to be trucked from the Site by an appropriately licensed contractor for offsite disposal at a licensed facility.

After passing through the oil-water separator, water discharges into a retention basin (the Chain Valley Retention Basin), located immediately to the north east. The Chain Valley Bay Retention Basin contains a series of booms to further isolate oil that may enter the pond. Water from the pond enters a pit before discharge into Chain Valley Bay. The pit contains isolation valves and the outlet pipe is covered with a membrane filter as a final screen for oil and other detritus.

Visual inspection of the Contaminated Water Treatment Plant during ERM's Phase 1 site visit in December 2013 identified an oily layer of Light Non-Aqueous Phase Liquid (LNAPL) on the water within the sediment basin. While oily residue was not observed in the holding pond, dissolved phase impact may still be present in water held within the pond.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Contaminated Water Treatment Plant. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Investigation Methodology and Field Observations*

A total of three soil investigation bores, two of which were completed as groundwater monitoring wells, and one surface soil were advanced within this AEC to assess potential impacts to soil and groundwater.

The sampling locations within this AEC are presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

During the sampling process, no field indicators of contamination, such as staining or odours were detected within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 1.3 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.6*.

**Table 5.6** *Field Observations Summary - AEC VE*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VE_MW01	0.2	None	0
VE_MW02	4.0	None	0
VE_MW03	4.0	None	0-1.0
VD_SB02	3.0	None	0-1.3

Groundwater samples were collected from two groundwater monitoring wells within the Contaminated Water Treatment Plant AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*.

Electrical conductivity (EC) ranged from 1113  $\mu\text{S}/\text{cm}$  in VE\_MW03, to 3152  $\mu\text{S}/\text{cm}$  in VE\_MW02 indicating slightly saline groundwater conditions. ORP measurements (mV) were within the expected range and pH levels were indicative of acidic conditions within both wells (pH of 4.26 at VE\_MW02 and 4.33 at VE\_MW03).

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.e of Annex B*.

Measured concentrations of all COPCs were below the adopted screening values in all soil samples collected from within this AEC. The majority of measured concentrations were below the corresponding laboratory LOR.

Concentrations of various heavy metals were above the corresponding laboratory LORs in a number of soil samples collected from within this AEC however all concentrations were below the adopted screening values.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.e of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed.

The exceptions to this were some detections of metals (discussed in *Section 5.4*) and phenol. The concentrations of phenol detected above the LOR at VE\_MW02 were below the adopted ecological screening value.

#### *Discussion*

No exceedances of the adopted ecological or human health screening values were identified in soil samples collected from within this AEC.

Exceedances of the adopted screening levels identified within this AEC were limited to metals, as discussed in *Section 5.4*

### 5.3.6 VF - Waste Oil Storage

#### *Background*

Waste oil in drums and containers and oily rags are stored in the waste oil collection area to the south of the oil and grit trap and AEC VE. This area also temporarily stores new oil drums for use in the Power Station. The area is bunded and collected stormwater from this area is pumped into the Contaminated Water Treatment Plant.

During the Stage 2 ESA field works the grate in the corner of the bunded area was observed to be covered in oil. Delta indicated that this waste oil collection/storage sump is fitted with a level sensor. When the sump is 50% full the water is decanted from the bottom and sent to the oil and grit trap and the oil disposed by Delta's waste collection contractor as required. The sump level is also monitored during routine inspections.

The area immediately surround the waste oil storage area is a combination of open ground and hardstanding. The inlet canal is approximately 30 m to the west and Chain Valley Bay is approximately 150 m to the north.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Waste Oil Storage area. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Investigation Methodology and Field Observations*

A total of three soil investigation bores, all of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

During the sampling process, no field indicators of contamination, such as staining or odours were detected within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.9 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.7*.

**Table 5.7** *Field Observations Summary - AEC VF*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VF_MW01	6.0	None	0-0.8
VF_MW02	3.7	None	0
VF_MW03	6.5	None	0-0.9

Groundwater samples were collected from three groundwater monitoring wells within the Waste Oil Storage AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*.

Electrical conductivity (EC) ranged from 540-1126  $\mu\text{S}/\text{cm}$  indicating fresh to brackish groundwater conditions. pH measurements ranged from pH 5.12 to 5.85, and were indicative of slightly acidic groundwater conditions.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.f of Annex B*.

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC.

Measured concentrations of COPCs were below the adopted ecological screening values in all soil samples collected from within this AEC with the exception of soil collected from VF\_MW02 at a depth of 0.1 m bgl which exceeded the ecological screening value for zinc.

Measured concentrations of various heavy metals were above the corresponding laboratory LOR in a number of soil samples collected from within this AEC however, with the exception of zinc, all concentrations were below the adopted screening values. Concentrations of PAHs were also reported above the laboratory LOR at VF\_MW02 at a depth of 0.1 m bgl (duplicate sample) however the concentration was below the adopted screening value.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.f of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed. The exceptions to this were some detections of metals.

*Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC.

Zinc concentrations marginally exceeded adopted ecological screening values in shallow soil sampled from 0.1 m bgl at VF\_MW02. It is noted that the concentration of zinc in the deeper soil sample collected from 2.0 m bgl at this location was below the adopted ecological screening values, and the exceedance at 0.1 m bgl may be attributed to shallow fill material at this location. This AEC is within the fenced operational area and therefore use of the area by wildlife is limited. The groundcover within this AEC is a mix of hardstanding and areas of grass cover. On this basis, these marginal exceedances are therefore considered unlikely to represent a significant risk to the terrestrial environment assuming ongoing commercial industrial use in the current or similar configuration.

**5.3.7*****VG - Fuel Oil Installation****Background*

The Fuel Oil Installation comprises two 1.2 ML steel ASTs, which are used for the storage of diesel. This installation is located outside the station inner security fencing and the bulk fuel oil supplies are delivered by road tanker. The volume of fuel being stored and transferred from this facility to the Site represents a significant source of potential contamination.

The ASTs are bunded with drainage from the bund discharging to the No. 1 Settling Basin for disposal to the Ash Dam.

Delta personnel indicated that the fuel within this system is reconciled on a monthly basis and a formal stocktake conducted every 6 months as part of the fuel accounting procedure. Given the limitations of wet stock reconciliation when dealing with such large volumes, there is a potential for leaks or spills to have caused the migration of contaminants to the underlying soil and groundwater.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Fuel Oil Installation. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Investigation Methodology and Field Observations*

A total of four soil investigation bores, all of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

During the sampling process, no field indicators of contamination, such as staining or odours were detected within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 34.0 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.8*.

**Table 5.8** *Field Observations Summary - AEC VG*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VG_MW01	14.8	None	0-1.2
VG_MW02	9.0	None	0
VG_MW03	10	Hydrocarbon staining, slight hydrocarbon odour	0-34.0
VG_MW04	14	None	0-3.5

Groundwater samples were collected from four monitoring wells within the Fuel Oil Installation AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*.

Electrical conductivity (EC) ranged from 213.8 - 4419  $\mu\text{S}/\text{cm}$  indicating fresh to saline groundwater conditions. pH levels were indicative of acidic conditions within the four wells and VG\_MW02 demonstrated a pH of 3.89 which is quite acidic and may be indicative of acid sulfate soil conditions in this area.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC, however sheen was observed during the initial purging of VG\_MW02 and VG\_MW04. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.



*Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.g of Annex B*.

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC.

Measured concentrations of COPCs were below the adopted ecological screening values with the exception of TRH C<sub>10</sub>-C<sub>16</sub> (excluding naphthalene) in the soil sample collected from VG\_MW03 at a depth of 0.5 m bgl and benzo(a)pyrene in the soil sample collected from VG\_MW01 at a depth of 0.1 m bgl. Measured concentrations of various heavy metals were above the corresponding laboratory LOR in a number of soil samples collected from within this AEC, however all concentrations were below the adopted screening values.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.g of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of all COPCs were below the laboratory LOR in all groundwater samples analysed, with the exception of metals (discussed in *Section 5.4*).

*Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC.

The measured concentration of TRH C<sub>10</sub>-C<sub>16</sub> exceeded the adopted ESL in the soil sample collected from VG\_MW03 at a depth of 0.5 m bgl and the measured concentration of benzo(a)pyrene exceeded the adopted ESL in the soil sample collected from VG\_MW01 at a depth of 0.1 m bgl. These sampling locations are located on the eastern and northern side of the AST bund beneath concrete hardstand, and the vegetation in this area is limited to patchy grass and some isolated trees on adjacent areas of open ground. No obvious signs of stressed vegetation were noted in the adjacent vegetated areas. These impacts are therefore considered unlikely to represent a significant risk to the terrestrial environment under the ongoing use of the Site as a power station.

5.3.8

**VH – Vehicle Refuelling Depot**

*Background*

The Vehicle Refuelling Depot is located adjacent to the Administration Building and consists of two Underground Storage Tanks (USTs) which are used to store unleaded petrol and diesel and are connected to two bowzers.

Anecdotal evidence from Delta personnel indicated that a single decommissioned underground storage tank is also located approximately 10 m to the north of the operational refuelling facilities and two decommissioned underground storage tanks and bowser plinth are located approximately 30 m north-west of the operational refuelling facilities. Tank integrity test data was not available for review.

The area is sealed to allow vehicles and heavy machinery such as cranes to refuel. The area is also a thoroughfare to the main operational areas of the Site.

Soil and groundwater investigations have been completed in the areas of underground tank infrastructure to facilitate compliance with relevant UPSS legislation. Four groundwater monitoring wells were installed in the UPSS area in 2010 and an additional six wells were installed in 2011.

In 2010, TRH(C<sub>10</sub> – C<sub>36</sub>) was identified at a concentration of 2540 µg/L, in a well installed to the north of the UPSS but TRH was not detected in any of the 10 wells sampled in 2011 (DLA Environmental, 2012). In 2011, four new groundwater monitoring wells were installed by David Lane and Associates and these have been subsequently assessed for the presence/absence of hydrocarbon sheen using an interface probe. Hydrocarbon sheens were not detected in these investigations (David Lane and Associates, 2013).

*AEC Methodology and Investigation Field Observations*

Ten existing groundwater monitoring wells were gauged and sampled during the Phase 2 ESA. Due to the presence and coverage of the existing wells around the active and decommissioned UST's, ERM did not undertake additional well installation within the area. The sampling locations within this AEC are presented on *Figure 6.5 of Annex A*.

A summary of the field observations from the drilling works are presented within *Table 5.9*.

**Table 5.9 Groundwater Field Observations Summary – AEC VH**

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence
VH_X_MW01	5.18	None
VH_X_MW02	5.42	None
VH_X_MW03	5.21	None
VH_X_MW04	5.21	None
VH_X_MW05	3.51	None

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence
VH_X_MW06	3.30	None
VH_X_MW07	4.34	None
VH_X_MW08	3.28	None
VH_X_MW09	3.38	None
VH_X_MW10	3.51	None

Groundwater samples were collected from the 10 existing groundwater monitoring wells present within the AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Field parameters indicated typically brackish groundwater conditions with electrical conductivity ranging from 1337 to 7064  $\mu\text{S}/\text{cm}$ .

pH measurements in groundwater within this AEC ranged between 3.32 and 4.35 indicating acidic conditions, which may be indicative of the presence of acid sulfate soil conditions in this area.

No indications of contamination such as sheens or odours were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.h of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of COPCs were below the laboratory LOR, with the exception of metals in most groundwater monitoring wells (discussed below), benzene at VH\_X\_MW06 and TRH, BTEX and phenols at VH\_X\_MW08. The concentration of benzene in groundwater at VH\_X\_MW06 exceeded the adopted human health (drinking water) screening values. The concentrations of TRH C<sub>6</sub>-C<sub>10</sub> (less BTEX), phenols, toluene, ethylbenzene and xylene in groundwater at VH\_X\_MW08 were above the laboratory LOR; however all concentrations were below the adopted human health and ecological screening values. The concentration of benzene at VH\_X\_MW08 exceeded both the human health (drinking water) and human health (recreational) screening values.

*Discussion*

Benzene was reported at concentrations exceeded the adopted human health (drinking water) screening values in two groundwater monitoring wells (VH\_X\_MW06 and VH\_X\_MW08) within this AEC. The adopted human health (recreational) screening value for benzene was also exceeded at VH\_X\_MW08). It is considered likely that the benzene impacts in AEC VH are associated with the presence of USTs in this area.

Groundwater monitoring has been ongoing within AEC VH since 2010, when TRH(C<sub>10</sub> - C<sub>36</sub>) was identified at a concentration of 2540 µg/L, in a well installed to the north of the USTs. Hydrocarbon detections in the current assessment were limited to BTEX constituents and do not suggest the presence of a significant ongoing release in this area of the Site.

The inferred groundwater flow direction in the area of the Vehicle Refuelling Depot is north east below the former A Station Power Block towards the inlet/outlet canal. In the absence of potable groundwater use in this area of the Site, these impacts are not considered to represent a significant potential risk to human health under the ongoing use of the Site as a Power Station. Benzene impacts were also not identified in sediment or surface water samples collected from the mouth of the inlet/outlet canal, indicating that these impacts are unlikely to be impacting upon recreational users of Lake Macquarie.

**5.3.9*****VI - Water Treatment Plant Area****Background*

The Demineralisation Plant, Reverse Osmosis Plant and Polisher Regeneration Plant are located to the south west of the B Station Power Block. Significant quantities of sulfuric acid, sodium hydroxide, hypochlorite, ammonia and ferric sulfate are stored in ASTs in this area.

The water treatment plant area is bunded with the surrounding area consisting of concrete hardstand. The water treatment plant is confined by the former A Station to the north, and the Power Station access road utilised by vehicles and heavy plant to the south followed by a steep embankment up towards the Fly Ash Plant (AEC VT).

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Water Treatment Plant Area. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Methodology and Investigation Field Observations*

A total of three soil investigation bores, two of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.5*. Relevant borehole logs are presented within *Annex D*. For the purpose of discussion of groundwater results, monitoring wells from VA, VB and VH have been considered where they are located around the perimeter of this AEC, to identify COPC that may have migrated from this AEC.

No field indicators of contamination, such as staining, odours or visibly stressed vegetation were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.6 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.10*.

**Table 5.10** *Field Observations Summary*

AEC VIBorehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VI_MW01	3.9	None	0-0.6
VI_MW02	4	None	0
VI_SB01	0.1	None	0

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3* of *Annex B*. Electrical conductivity measurements indicated fresh water conditions at VI\_MW02 and brackish groundwater conditions at VI\_MW01. pH measurements indicated acidic conditions at VI\_MW01 (pH 4.2) and slightly acidic conditions at VI\_MW02 (pH 5.39) and moderately acidic pH values.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3* of *Annex B*.

*Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.i* of *Annex B*.

Measured concentrations of all COPCs with the exception of zinc (discussed below) were below the adopted human health and ecological screening values in all soil samples collected from within this AEC. The majority of measured concentrations were below or close to the corresponding laboratory LOR.

Concentrations of some TRH fractions were above the corresponding laboratory LOR in soil collected from VI\_SB01 at a depth of 0.1 m bgl; however all concentrations were below the adopted screening values.

Concentrations of various heavy metals were identified above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. All concentrations of COPC in soil were below the adopted human health and ecological screening values, with the exception of zinc at VI\_SB01 at a depth of 0.1 m bgl which exceeded the adopted ecological screening value.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.i of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed with the exception of metals, TRH and PFOS. Measured concentrations of TRH C<sub>16</sub>-C<sub>34</sub> and PFOS were detected above the laboratory LOR at VI\_MW01, however all detected concentrations were below the adopted screening values.

Cobalt, copper and zinc were detected at concentrations exceeded the adopted ecological screening values in groundwater samples collected from monitoring wells within this AEC. Manganese was detected at concentrations exceeded the adopted human health (drinking water) in groundwater samples collected from several monitoring wells within this AEC.

#### *Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. The ecological screening value for zinc was exceeded by a factor of approximately 300% in one soil sample collected from VI\_SB01 at a depth of 0.1 m bgl.

This sampling point is located in a strip of open ground within the operational area that is approximately 20 m in width. The vegetation in this area is limited to a covering of grass and isolated trees. Given the highly disturbed and operational nature of the Site, this isolated area of zinc impact is not considered to represent a significant risk to the terrestrial environment under the ongoing commercial industrial use of the Site.

**5.3.10 VJ – Coal Storage Area**

*Background*

The coal storage area is located to the south west of the power block and is used for stockpiling of coal prior to transfer via conveyor to the coal mill and boilers. Truck washing facilities are located within this area and it is understood that biomass (primarily wood chips) for electricity generation were historically stored within this AEC.

Potential contamination sources include dirty water from the truck washing facility and contaminated stormwater runoff from this area, which are captured by a system of concrete drains that discharge into the settling ponds located in the northern portion of the stockpile area. Water from the retention ponds is discharged to the Ash Dam and overflow from these settling ponds is discharged into the outfall canal. Leaching of contaminants from the coal stockpiled on open ground may also impact groundwater.

No soil or groundwater investigations are known to have been completed within this AEC to date, therefore further investigation was undertaken to provide a baseline for soil and groundwater conditions in this area.

*AEC Methodology and Investigation Field Observations*

A total of fourteen soil investigation bores, ten of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The distribution of sampling locations within this AEC is presented in *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

No field indicators of contamination, such as staining, odours or visibly stressed vegetation were noted outside of the coal stockpile area within this AEC. No staining was detected at any depth through the sampled soil profile but a sulfurous or organic odour was noted in a number of deep soil samples. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 15.2 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.11*.

**Table 5.11 Field Observations Summary – AEC VJ**

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VJ_MW01	7.5	None	0
VJ_MW02	5	None	0-2.6
VJ_MW03	6.3	Sulfur odour at 4 m bgl	0-15.2
VJ_MW04	7	None	0-10.5
VJ_MW05	8	None	0-2.7
VJ_MW06	8	None	0.2-5.1

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VJ_MW07	8	None	0
VJ_MW08	6	None	0-0.8
VJ_MW09	6	None	0.2-6.1
VJ_MW10	6	Organic odour	0.2-6.1
VJ_SB01	3	None	0-1.1
VJ_SB02	3	Organic odour	0-2.6
VJ_SB03	3	None	0.2-3
VJ_SB04	3	None	0.2-3

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements ranged from 529 to 3049  $\mu\text{S}/\text{cm}$ , indicating fresh water to saline conditions. The pH of the groundwater ranged from 4.32 to 6.11, which indicates slightly acidic to acidic conditions in groundwater across the AEC, this, in combination with the sulfurous odours noted may be an indicator of acid sulfate soil conditions.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.j of Annex B*.

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC.

The majority of measured concentrations in soil were below the corresponding laboratory LOR with the exception of toluene, PAHs and some TRH fractions. The concentration of toluene was above the corresponding laboratory LOR in soil collected from VJ\_MW03 at a depth of 4.0 m bgl; however all concentrations were below the adopted screening values.

Concentrations of PAHs were above the corresponding laboratory LOR in soil collected from VJ\_SB04\_0.15 m bgl, VJ\_SB01\_1.0 m bgl, VJ\_MW08\_1.0 m bgl, VJ\_MW07\_0.1 m bgl, VJ\_MW01\_0.2 m bgl, VJ\_MW05\_1.0; however all concentrations were below the adopted screening values.

Concentrations of some TRH fractions were above the corresponding laboratory LOR in soil collected from VJ\_SB04 at a depth of 0.15 m bgl, VJ\_SB01 at a depth of 1.0 m bgl, VJ\_MW08 at a depth of 1.0 m bgl, VJ\_MW01 at a depth of 0.2 m bgl. however all concentrations were below the adopted screening values.



All concentrations were below the adopted screening values with the exception of TRH C<sub>10</sub>-C<sub>16</sub> at VJ\_MW07 at a depth of 0.1 m bgl which marginally exceeded the adopted ecological screening value.

Concentrations of various heavy metals were identified above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. All concentrations of COPC in soil were below the adopted human health and ecological screening values.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.j of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed with the exception of some TRH fractions, toluene and 3&4-methylphenol at VJ\_MW03 and metals in groundwater across the AEC (discussed in *Section 5.4*). The concentrations of TRH, toluene and 3&4-methylphenol at VJ\_MW03 were above the corresponding laboratory LOR however all concentrations were below the adopted screening values.

#### *Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. The ecological screening value was exceeded in one soil sample at VJ\_MW07.

The measured concentration of TRH C<sub>10</sub>-C<sub>16</sub> marginally exceeded the adopted ecological screening value in the soil sample collected from VJ\_MW07 at a depth of 0.1 m bgl. The concentration of TRH in soil was below the adopted human health screening values and TRH was not detected above the laboratory LOR in groundwater at this location. The concentrations of TRH reported in other sampling locations within this AEC did not exceed the adopted screening values. Monitoring well VJ\_MW07 was located on the south-western corner of the coal stockpile area approximately 20 m from the edge of the coal stockpile area in an area of unsealed ground around the coal stockpile.

The vegetation in this area is limited to sparse areas of grass but no obvious differences were noted between the vegetation within this TRH impacted area and other similar sampling locations around the Coal Stockpile. On this basis and considering that exceedances of the adopted screening values were not identified in the other soil samples collected from within this AEC, this identified TRH impact is not considered to represent a significant risk to the terrestrial environment under the ongoing use of the Site as a Power Station.

### 5.3.11 VK – Mobile Plant Maintenance and Refuelling Areas

#### *Background*

Mobile plant associated primarily with the coal storage area is serviced and refuelled in AEC VK, located directly to the north of the coal storage area. This area also houses a diesel AST, refuse oil AST, a lubricants station and a parts cleaning facility.

The refuelling/ maintenance facilities are contained within a bunded area and runoff from this area is directed via an oil separator into a settling pond.

No soil or groundwater investigations are known to have been undertaken to date which specifically target the Mobile Plant Maintenance Area. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Methodology and Investigation Field Observations*

A total of nine soil investigation bores, seven of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations were distributed within this AEC as presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

Field indicators of contamination, such as staining, odours or visibly stressed vegetation were not noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile at other locations within this AEC. Measured concentrations of ionisable volatile compounds via headspace analysis did not exceed 10.3 ppm v (isobutylene equivalent) in soil samples collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.12*.

**Table 5.12** *Field Observations Summary – AEC VK*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v)
VK_MW01	8	None	0-0.2
VK_MW02	6	None	0-1.3
VK_MW03	6	None	0-1.1
VK_MW04	6	None	0.1-0.4
VK_MW05	8.3	None	0-10.3
VK_MW06	7	None	0-1.3
VK_MW07	5.4	None	0-0.1
VK_SB01	5.1	None	0-0.9
VK_SB02	3.9	None	0

Field parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements indicated generally fresh groundwater conditions with brackish conditions at VK\_MW05, VK\_MW06 and VK\_MW07 (2648 to 6141  $\mu\text{S}/\text{cm}$ ). The groundwater within this AEC was slightly acidic to acidic with a pH range between 4.12 and 5.44.

Sheen was observed on groundwater purged from VK\_MW03 during the groundwater sampling event. No other indications of potential contamination, such as sheen or odours, were observed during groundwater sampling at other locations within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.k of Annex B*.

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC. Measured concentrations of COPCs were below the adopted ecological screening values in all soil samples collected from within this AEC with the exception of nickel in the soil sample collected from VK\_MW04 at a depth of 0.2 m bgl.

The majority of measured concentrations of COPCs were below the corresponding laboratory LOR. Concentrations of some TRH fractions were above the corresponding laboratory LOR in the soil sample collected from VK\_MW07 at 1.0 m bgl, however all concentrations were below the adopted screening values. Concentrations of phenanthrene were above the corresponding laboratory LOR in the soil samples collected from VK\_MW02 at a depth of 0.2 m bgl, VK\_MW04 at a depth of 0.2 m bgl, VK\_MW06 at a depth of 0.5 m bgl and VK\_MW07 at a depth of 1.0 m bgl, however all concentrations were below the adopted screening values.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.k of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed, with the exception of selected metals in groundwater (discussed in *Section 5.4*).

*Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. The ecological screening value for nickel was exceeded in the soil sample collected from VK\_MW04 at a depth of 0.2 m bgl. This soil sample was collected below concrete hardstanding and therefore the identified exceedance for nickel is not considered to represent a significant risk to the terrestrial environment under the ongoing use of the Site as a Power Station.

### 5.3.12 *VL - Sewage Treatment Plant*

*Background*

The Vales Point Sewage Treatment system is located outdoors to the west of the operational area and consists of a tank with sedimentation compartment and sludge compartments and three treatment ponds, with a mechanical aeration system. The effluent from the third pond in this system ultimately discharges to the Retention Basin on the northern side of the Ash Dam.

Sewage can contain a variety of contaminants, including nitrates, metals, trace concentrations of toxic chemicals and salts. Potential contamination sources in association with the sewage treatment plant include leakage from the sewage treatment systems, associated pipework or retention basin into the underlying soil or groundwater.

No soil or groundwater investigations are known to have been completed in the vicinity of the sewage treatment plant facilities, therefore further investigation was undertaken to assess potential environmental issues associated with soil and groundwater conditions within this AEC.

*AEC Methodology and Investigation Field Observations*

A total of three soil investigation bores, all of which were completed as groundwater monitoring wells, were advanced within this AEC and one surface soil sample was collected to assess potential impacts to soil and groundwater. The three groundwater monitoring wells were distributed across the AEC to up gradient, cross-gradient and down gradient of the sewage treatment facility. The soil bore VL\_SB01 was abandoned due to the proximity to sub-surface electrical utilities, however a surface soil sample was collected at this location. The sampling locations were distributed within this AEC as presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*. No field indicators of contamination, such as staining, odours or visibly stressed vegetation were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.2 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.13*.

**Table 5.13** *Field Observations Summary - AEC VL*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VL_MW01	6	None	0- 0.2
VL_MW02	7	None	0-0.1
VL_MW03	6	None	0-0.1
VL_SB01	0.1	None	0

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3* of *Annex B*. Electrical conductivity measurements in groundwater within this AEC were indicative of fresh water conditions, with a range between 292 and 517  $\mu\text{S}/\text{cm}$ .

The measured pH ranged between 5.36 and 6.11 which was indicative of slightly acidic groundwater conditions within this AEC.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3* of *Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.1* of *Annex B*.

Measured concentrations of COPCs were below the adopted human health and ecological screening values in all soil samples collected from within this AEC. The majority of measured concentrations of COPC were also below or close to the corresponding laboratory LOR. Concentrations of various heavy metals were identified above the corresponding laboratory LOR in a number of soil samples collected from within this AEC, however all concentrations were below the adopted screening values.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.1* of *Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9* of *Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed. The exceptions to this were some detections of metals within groundwater across this AEC (discussed in *Section 5.4*).

*Discussion*

No exceedances of the adopted screening values were identified in soil samples collected from within this AEC. Similarly, with the exception of metals, no exceedances of the adopted screening values were identified in groundwater.

**5.3.13 VM - Chlorine Plant***Background*

The Vales Point Power Station generates free chlorine onsite through an electrolytic process using seawater sourced from Lake Macquarie. The chlorine plant is located to the north west of the power block and includes the bulk storage of hydrochloric acid and sodium hypochlorite in ASTs. The transformer oil storage filtration building, associated with the TransGrid Switchyard is also located immediately adjacent to the Chlorine Plant to the north.

The chlorine plant area is bunded and this AEC is predominantly covered by a concrete hardstand to allow access for vehicles and plant machinery.

No soil or groundwater investigations are known to have been completed within this AEC to date and therefore further investigation was undertaken to provide a baseline and to assess soil and groundwater conditions within this AEC. The data collected within this AEC was also used to evaluate COPCs associated with the operation of the adjacent transformer oil storage filtration building.

*AEC Methodology and Investigation Field Observations*

A total of three soil investigation bores, all of which were completed as groundwater monitoring wells, were advanced within this AEC and three surface soil samples were collected to assess potential impacts to soil and groundwater. Surface soil samples were collected at three locations. At three locations where soil bore and monitoring wells could not be advanced, as discussed in *Section 4.1*. The sampling locations were distributed within this AEC as presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

No field indicators of contamination, such as staining or odours were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile, although an organic odour was noted in one deep soil sample. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.5 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.14*.

**Table 5.14** *Field Observations Summary – AEC VM*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm)
VM_MW01	6	None	0-0.5
VM_MW02	0.1	None	0
VM_MW03	4.5	None	0-0.2
VM_MW04	4	Organic odour	0-0.5
VM_MW05	0.1	None	0
VM_SB01	02	None	0

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3* of *Annex B*. Electrical conductivity measurements in groundwater within this AEC indicated fresh water to brackish water conditions, with a range from 895 to 3973  $\mu\text{S}/\text{cm}$ . The measured pH ranged between pH 5.08 and 6.03 which was indicative of slightly acidic groundwater conditions within this AEC.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 2* of *Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.m* of *Annex B*.

The majority of measured concentrations of COPCs were below or close to the corresponding laboratory LOR. Concentrations of TRH were identified above the corresponding laboratory LOR in soil samples collected from VM\_MW02 at a depth of 0.1 m bgl and VM\_MW05 at a depth of 0.1 m bgl,

Concentrations of PAHs including acenaphthylene, benz(a)anthracene, benzo(a) pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene and pyrene were identified above the corresponding laboratory LOR in soil samples collected from VM\_MW02 at a depth of 0.1 m bgl. All reported PAH and TRH concentrations were below the adopted screening values. Concentrations of various heavy metals were identified above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. The concentration of zinc in a soil sample collected from 0.2 m bgl at VM\_MW02 exceeded the adopted ecological screening value.

The measured concentrations of asbestos fines and fibrous asbestos (0.004 %w/w) in the soil sample from VC\_MW03 at a depth of 0.1 m bgl exceeded the adopted human health screening value of 0.001 % w/w). Chrysotile and amosite asbestos fines and fibrous asbestos (FA and AF) were detected in one sample at VM\_MW02 at a depth of 0.1 m bgl and the laboratory report identified “one piece of friable asbestos cement sheeting approximately 5 x 4 x 2mm plus several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5mm”.

#### *Groundwater*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.m of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*

Concentrations of some TRH fractions were detected above the corresponding laboratory LOR in groundwater from monitoring well VM\_MW04, however all concentrations were below the adopted screening values.

Concentrations of PFOS and PFOA were detected above the corresponding laboratory LOR in groundwater from monitoring well VM\_MW03. The concentration of PFOS in groundwater at VM\_MW03 was exceeded the adopted human health (drinking water) screening values.

#### *Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. The ecological screening value for zinc was exceeded in the soil sample collected from VM\_MW02 at a depth of 0.1 m bgl.

VM\_MW02 is located in an operational area of open ground immediately adjacent to the outlet canal. The vegetation in this area is limited to a sparse covering of grass and there is limited access to the area by wildlife. On this basis, this area of zinc impact is not considered to represent a significant potential risk to the terrestrial environment under the ongoing use of the Site as a power station.

The measured concentrations of asbestos fines and fibrous asbestos (0.004 %w/w) in the soil sample from VC\_MW03 at a depth of 0.1 m bgl exceeded the adopted human health screening value of 0.001 % w/w). It is noted that this sample was collected from unsealed ground adjacent to the chlorine plant on the western side of the canal, and surface soils in this area may be accessible to Site workers and thus may represent a potential health risk if potential exposure pathways are not managed appropriately.



### 5.3.14 VN – Wye Coal Unloader Area and Coal Conveyors

#### *Background*

The Wye Coal Unloader facility is located to the north of the Ash Dam and adjacent to the Main Northern Rail Line between Wye and Morisset, approximately 4.5 km to the north west of the operational area. A network of coal conveyors links this facility to the Coal Storage Area (AEC VJ). The operational area of this AEC is surrounded by buffer lands primarily comprised of dense bushland.

The Wye Coal Unloader facility is comprised of a series of hoppers, feeders and transfer points. At the time of the investigation, the operation of the rail corridor and hopper unloader facility was suspended for maintenance and additional construction.

During the site investigation works, seven ASTs were identified in the operational area of the AEC. Four ASTs located near the Rail to Vales (RV) conveyor were used to hold water and three ASTs located near the office pre-fab buildings and main hopper unloader are used as fire water storage tanks and are connected to the fire hydrants servicing the operational areas and conveyor systems. Two water retention ponds are located to the north east of the main hopper unloaders.

The majority of the RV conveyor system follows ground level, with the RV conveyor gradually becoming elevated towards the transfer towers. The conveyors are covered to reduce the potential for fugitive dust emissions.

One pond of unknown historic use is located in a cleared area, approximately 600 m to the south east of the conveyor loop. This pond is not utilised by Delta and is surrounded by dense vegetation.

Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Methodology and Investigation Field Observations*

A total of fifteen soil investigation bores, ten of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.1* of *Annex A*. Relevant borehole logs are presented within *Annex D*.

Significant quantities of fly-tipped waste, including drummed oils, household waste, wood, steel and plastic were observed in very close proximity to drilling location VN\_MW10, on the eastern Site boundary, as shown in Photograph 47 and 48 of *Annex G*.

This area is accessible by the public via a short gravel road off Rutleys Road and the waste is likely to have been dumped illegally by members of the public.

No staining or unusual odours were detected at any depth through the sampled soil profile in this AEC. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 3.4 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.15*.

**Table 5.15** *Field Observations Summary - AEC VN*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VN_MW01	7	None	0- 0.6
VN_MW02	4	None	0
VN_MW03	14	None	0
VN_MW05	7.5	None	0-0.9
VN_MW06	11.5	None	0-3.5
VN_MW07	11.5	None	0-1.8
VN_MW08	8	None	0-3.4
VN_MW09	7	None	0-1.6
VN_MW10	13.5	None	0
VN_MW12	5	None	0-0.2
VN_SB01	3	None	0-1.5
VN_SB02	3	None	0-0.1
VN_SB03	1.2	None	0
VN_SB04	3	None	0-0.6
VN_SB05	0.5	None	0.8-1.0

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements indicated freshwater conditions in groundwater within this AEC, with a range between 172.3 and 1000  $\mu\text{S}/\text{cm}$ . The measured pH ranged between 3.52 and 6, which is indicative of acidic to slightly acidic conditions in groundwater within this AEC. Acidic groundwater conditions at VN\_MW12 (pH of 3.52) may indicate the presence of acid sulfate soil conditions in the area. This monitoring well is located immediately to the south of the water retention ponds.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 2 of Annex B*.

*Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.n of Annex B*.

Measured concentrations of all COPCs with the exception of zinc were below the adopted screening values in all soil samples collected from within this AEC. The majority of measured concentrations were also below or close to the corresponding laboratory LOR in the soil samples collected from within this AEC. The zinc concentration measured in the soil sample collected from VN\_MW08 at a depth of 0.2 m bgl was marginally in excess of the ecological screening value for areas of ecological significance but did not exceed the ecological screening value for commercial/industrial areas.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.n of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*

The majority of measured concentrations of COPCs in groundwater were also below or close to the corresponding laboratory LOR in the samples collected from within this AEC, with the exception of metals (discussed in *Section 5.4*).

*Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. The ecological screening value was exceeded in soil at VN\_MW08 for zinc.

The zinc concentration measured in VN\_MW08 at a depth of 0.2 m bgl marginally exceeded the screening value adopted for areas of ecological significance. This sampling location was located within the operational area of this AEC. The *Delta Coast Land Management Manual* (GHD, 2012) indicated that a number of threatened bat species have been identified in the wooded areas surrounding the operational area but as the zinc concentration in this sample did not exceed the adopted screening value for commercial/industrial areas and zinc concentrations in excess of the screening levels for ecologically significant areas were not identified across the remainder of the AEC, this isolated impact is not considered to be representative of a significant risk to the terrestrial environment.

The US EPA (2013) ProUCL (version 5) software was also used to calculate a 95% UCL value of 16.7 mg/kg for the zinc concentrations in the soil samples collected at depths of less than 1 m bgl across this AEC (calculations provided in *Annex I*). This value is significantly less than the ecological screening level adopted for areas of ecological significance.

## 5.3.15

**VO – Ash Dam***Background*

The Ash Dam is located to the south-west of the operational area of the Site. A large proportion of the ash which is produced from the Vales Point Power Station is transported by wet sluicing via pipelines to the Ash Dam. The northern portion of the Ash Dam (Ponds 1, 2 and 3) have been filled to capacity and rehabilitated. The central areas of the Ash Dam, known as Pond 4, 5A and 5B, are currently active and receiving wet sluice from the Power Station. Ash settles in these upper reaches of the dam and the water is pumped back to the Power Station via ash return water pumps. Prior to Munmorah Power Station ceasing operations, the Vales Point Ash Dam was also used for the storage of fly ash produced at Munmorah Power Station.

Various other solid and liquid wastes are also permitted to be directed to the Ash Dam under the EPL including coal fines, mill pyrites, residual detergents and oil sheens, sand, concrete products, boiler blowdown, minor chemical spill residues, chemicals for environmental control, ash dam water treatment plant residues, dust returned from the ash recovery plant, marine growth, debris, seaweed, chemical cleaning solutions, oil and chemically impacted soil, desilting of settling basins, dredge spoil, waste wood, wood chips, dirty water drains, treatment plant discharges, coal handling plant stormwater, neutralised demineralisation effluent, polisher plant effluent, spent ion exchange resins, chlorine plant storage vessel precipitates, cable tunnel drainage, fabric filter bags, coal chitter and soil capping materials, coal mine dewatering discharges. Asbestos Containing Material (ACM) was also historically disposed within the dam.

Heavily vegetated areas are located around the boundaries of the Ash Dam. The *Delta Coast Land Management Manual* (GHD, 2012) indicates that threatened flora and fauna has been identified in the buffer lands surrounding the Ash Dam. *State Environmental Planning Policy No. 14* (SEPP 14) wetlands are also located immediately to the north of the Ash Dam toe drain and along the creeks to the north of the Ash Dam. Rural residential areas are located along the north western boundary of the Ash Dam and residential areas are located directly to the west and south of the Ash Dam.

Three existing groundwater monitoring wells installed to the north of the Ash Dam have been monitored on a quarterly basis since 2008 to assess seepage from the Ash Dam. A qualitative review of this data indicates that the groundwater is saline and slightly acidic and that measured concentrations of copper, lead, nickel and zinc consistently exceed the ANZECC (2000) trigger values for marine water quality. As a result, the EPA has requested additional groundwater investigations in this area and a Pollution Reduction Program (PRP) has been implemented under the Site EPL.

*AEC Methodology and Investigation Field Observations*

Intrusive soil and groundwater investigations within the active or rehabilitated areas of the Ash Dam were not considered necessary, as it is already acknowledged that these areas are impacted with waste materials (primarily ash). The investigations of this AEC therefore focused on identifying COPC that may have migrated from this AEC towards sensitive receptors.

A total of twenty-one soil bores were advanced and nineteen of these were converted into groundwater monitoring wells. Sampling locations were installed around the entire boundary of the Ash Dam, with the exception of an approximately 2 km stretch along the south western side of the Ash Dam, where the presence of a high pressure Jemena gas pipeline prevented the installation of sampling locations. The sampling locations within this AEC are presented on *Figures 6.2, 6.3 and 6.6 of Annex A*. Relevant borehole logs are presented within *Annex D*.

During the additional round of sampling undertaken on 27 May, 2014. Surface water from the toe drain was sampled. It was noted that this water was not flowing and appeared stagnant with orange staining. This sample was analysed for metals. The laboratory results are shown in *Table 5.0 in Annex B*.

During the sampling program, no staining or odours were noted on the Site surface. Visibly stressed vegetation was noted in the areas within approximately 30 m of the active portion of the Ash Dam, although it is noted that this could be related to a number of factors, potentially including inundation (refer to *Photograph 46 and 47 of Annex G*).

No staining was detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 5.9 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.16*.

**Table 5.16** *Field Observations Summary - AEC VO*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VO_MW01	4	H <sub>2</sub> S odour at 3.2 m bgl	0- 8.7
VO_MW02	7	None	0-0.8
VO_MW03	7.5	H <sub>2</sub> S odour at 7 m bgl	0-5.9
VO_MW04	8	None	0
VO_MW05	10	None	0
VO_MW06	2.5	Shale staining	0
VO_MW07	10	None	0
VO_MW08	12.5	None	0
VO_MW09	12	None	0-2.4
VO_MW10	12	None	0-0.6

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VO_MW11	12	None	0-3.4
VO_MW12	3	None	0
VO_MW13	5.1	None	0
VO_MW14	6	None	0
VO_MW15	5.5	None	0-0.5
VO_MW16	4.6	Possible ash	0-0.2
VO_MW17	4.5	None	0-1.2
VO_MW18	7	None	0-1.0
VO_MW19	5	None	0
VO_MW20	11	None	0-1.7
VO_SB01	3	None	0
VO_SB03	3	None	0-0.1

Groundwater field parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements indicated that the groundwater within this AEC ranged from fresh to highly saline conditions. The pH measurements in groundwater within this AEC were typically slightly acidic with a range from pH of 3.6 to 6.55. pH values of less than 4 were recorded in monitoring wells VO\_MW04, VO\_MW06, VO\_MW12, VO\_MW18 and VO\_MW19, which may indicate the presence of ASS conditions. VO\_MW04 is located near the Ash Dam toe drain, VO\_MW06 is located on the north western boundary of the Ash Dam and VO\_MW12 is located near the discharge point for the Ash Dam into Wye Creek. VO\_MW18 and VO\_MW19 are located immediately to the east of the Ash Dam.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.0 of Annex B*.

The concentrations of TRH (C10-C16 excluding naphthalene) measured in soil samples collected from VO\_MW06 and VO\_MW10 at a depth of 0.2m bgl exceeded the ecological screening values for areas of ecological significance, but not the screening values for commercial industrial areas.

The nickel and zinc concentrations in selected soil samples marginally exceeded the ecological screening value for areas of ecological significance.

Asbestos was not reported in soil within this AEC.

*Groundwater Analytical Data*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.0 of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*

With the exception of metals, all COPCs were measured at concentrations below the laboratory LOR.

*Surface Water Analytical Results*

The surface water samples collected from within the Ash Dam toe drain reported concentrations of manganese greater than the adopted human health (drinking water) screening values and cobalt and zinc concentrations greater than the adopted ecological screening levels.

A comparison between the metal concentrations measured in the toe drain and those measured in the groundwater monitoring wells located immediately upgradient of the toe drain (including VO\_MW02, VO\_MW03 and VO\_X\_MW03) indicated that the manganese concentration in the toe drain were lower by a factor between 3 and 7 and the cobalt concentrations were lower by a factor of between 14 and 19. The zinc concentrations measured in the toe drain were of a similar order of magnitude to those measured in the immediately upgradient groundwater monitoring wells. Arsenic, nickel and selenium were measured at concentrations in excess of the adopted screening values in groundwater monitoring wells located immediately upgradient of the toe drain but not within the toe drain.

*Discussion*

The concentrations of TRH (C<sub>10</sub>-C<sub>16</sub> excluding naphthalene), benzo(a)pyrene, nickel and zinc measured in individual soil samples exceeded the ecological screening values adopted for areas of ecological significance, but not the screening values for commercial industrial areas. These results indicate that concentrations of TRH, PAH, nickel and zinc in soil around the boundary of the Ash Dam may be sufficient in some areas to adversely impact upon sensitive terrestrial organisms.

Overall however, a significant adverse effect on the terrestrial environment is not predicted on the basis of these results, particularly given the operational nature of the Ash Dam and the licensed placement of a variety of waste materials, including ash, within this structure.

Groundwater from monitoring wells within this AEC reported metals concentrations greater than the adopted human health and ecological screening values.

A consolidated discussion of this issue is presented in *Section 5.4*, but the surface water samples collected from within the Ash Dam toe drain indicate that lower concentrations are discharging into the downgradient area or that the surface water has been diluted by other inputs, such as rainfall.

### 5.3.16 *VP – Asbestos Landfills*

#### *Background*

There are six Asbestos Landfills located within the catchment of the Ash Dam. These Asbestos Landfills (referred to as “Dumps”) were closed in approximately 1995. Four of the Dumps (Dumps 1-4) have been closed and covered, revegetated and surveyed. Dump 5 is located entirely within the active area of the Ash Dam. Dump 6 is located predominantly within the active area of the Ash Dam, with a small portion located in bushland to the east of the active portion of the Ash Dam. Dump 4 is located within the previously active area of the Ash Dam which was rehabilitated around 2007. The Asbestos Landfills are fenced with signs to indicate the presence of asbestos contaminated wastes.

Detailed information about the waste materials disposed within the Asbestos Landfills was not available for review as a part of this assessment but it is understood that the primary material disposed within these areas was asbestos. The waste materials contained within the landfill areas have the potential to impact the conditions of underlying soil and groundwater.

Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions around the known delineated extent of the landfills.

#### *AEC Methodology and Investigation Field Observations*

Intrusive soil and groundwater investigations within the asbestos landfills were not considered safe or necessary, as it is already acknowledged that these areas are impacted with waste materials. The investigation locations in this AEC were distributed to target the soil and groundwater conditions around the perimeter of the known delineated extent of the landfills, as marked by the security fencing and signage and indicated in plans provided by Delta. The investigations within this AEC focussed on identifying COPCs that may have migrated from this AEC towards sensitive receptors.

A total of twelve soil bores were advanced around the perimeter of the known asbestos landfill areas. Two of these bores were converted to monitoring wells in the area downgradient of the three landfills located to the north of the Ash Dam (Dump 1, Dump 2 and Dump 3).



The installation of monitoring wells in the areas downgradient of the asbestos landfills was limited due to the rough terrain in this area, however the monitoring wells from the adjacent Ash Dam AEC (AEC VO) as well as surface water samples from AEC VR have also been considered. The three landfills known as Dump 4, Dump 5 and Dump 6 are located either within the area currently covered by the active Ash Dam or the rehabilitated part of the Ash Dam. The groundwater in these areas has been considered in the assessment of groundwater conditions in the Ash Dam AEC (AEC VO).

The sampling locations within this AEC are presented on *Figures 6.2 and 6.3 of Annex A*. Relevant borehole logs are presented within *Annex D*.

As anticipated, ash as well as coal and shale fragments were encountered at several locations in this AEC. Ash was identified from a depth of approximately 0.5 m bgl in the profiles of the three soil bores (VP\_SB09 and SP\_SB10) around the perimeter of the former "Dump 4", and a thin layer of ash was also encountered between 1.1 and 1.3 m bgl at VP\_SB07. All three of these soil bores are located within the rehabilitated ash disposal area. Coal and shale fragments were encountered within the surface soils at three locations, VP\_MW02, VP\_SB01 and VP\_SB02 which are located adjacent to the coal conveyor. There were no further staining or unusual odours detected at any depth through the sampled soil profile in this AEC. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.8 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.17*.

**Table 5.17** *Field Observations Summary - AEC VP*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VP_MW01	9	None	0
VP_MW02	7	None	0-0.1
VP_SB01	1.5	Coal and shale present.	0-0.3
VP_SB02	1.5	Coal and shale present.	0-0.1
VP_SB03	1.5	None	0
VP_SB04	2.1	None	0
VP_SB05	3	Ash	0-0.2
VP_SB06	3	None	0-0.6
VP_SB07	3	Ash	0-0.5
VP_SB08	3	None	0-0.8
VP_SB09	1.5	Ash	0
VP_SB10	0.5	Ash	0

*Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.p of Annex B*.

The majority of measured concentrations of COPC were below the corresponding laboratory LOR, with the exception of TRH, PAH and metals. Measured concentrations of TRH and PAH constituents were detected in soil samples collected from VP\_SB02, however the measured concentrations did not exceed the adopted human health or ecological screening values.

Concentrations of various heavy metals were identified above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. However all concentrations were below the adopted screening values with the exception of copper and zinc. The measured concentrations of copper and zinc in the soil sample collected from VP\_SB01 at a depth of 0.2 m bgl exceeded the adopted ecological screening values.

Asbestos was detected in two soil samples collected from within this AEC at VP\_MW02 at a depth of 2 m bgl and VP\_SB02 at a depth of 0.2 m bgl. In both soil samples there were no visual indicators of potential ACM during the sample collection in the field. In the soil sample collected from VP\_SB02 at a depth of 0.2 m bgl, the laboratory identified "several pieces of friable asbestos cement sheeting approximately 5 x 4 x 4 mm plus several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm". The laboratory reported that amosite, crocidolite and chrysotile asbestos were present in the soil sample.

The asbestos quantification results reported that fibrous asbestos was detected at 0.034 % w/w and that asbestos fines and fibrous asbestos (<7 mm) were detected at 0.009 % w/w which is above the adopted human health screening criteria. In the soil sample collected from VP\_MW02 at a depth of 2 m bgl the laboratory identified "several pieces of friable asbestos cement sheeting approximately 4 x 3 x 2 mm plus several loose bundles of friable asbestos and unidentified mineral fibres approximately 2 x 1 x 0.5 mm". The laboratory reported that amosite and crocidolite asbestos were present in the soil sample. The asbestos quantification results reported that fibrous asbestos was detected at 0.117 % w/w and that asbestos fines and fibrous asbestos (<7mm) were detected at 0.035 % w/w which is above the human health screening criteria.

*Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.p of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the adopted screening values in the groundwater samples collected from within this AEC.

Benzene was detected at a concentration that marginally exceeded the adopted human health (drinking water) screening values in a single groundwater sample collected from VP\_MW01. This well was re-sampled eight weeks later and again benzene was detected at a concentration exceeding the adopted human health (drinking water) screening values. Copper and zinc were also detected at concentrations marginally exceeded the adopted ecological screening values in a groundwater sample VP\_MW02.

#### *Discussion*

The copper and zinc concentrations in the shallow soil sample collected from VP\_SB01 exceeded the adopted ecological screening values. These results may suggest a hotspot of metal impact in the vicinity of the asbestos landfill. The absence of elevated metal concentrations in other soil samples collected from within this AEC however, suggests that metal impacts are unlikely to be widespread in the areas surrounding the asbestos landfills. Concentrations of copper and zinc in excess of the ecological screening levels were identified in groundwater collected from this AEC. However the measured concentrations were consistent with those measured in monitoring wells up-gradient of the landfills in AEC VJ and VK.

The measured concentrations of benzene exceeded the adopted human health (drinking water) screening values in groundwater when sampled on two occasions. The monitoring well (VP\_MW01) is located downgradient of an asbestos landfill area. In the absence of potable groundwater use in this area, this exceedance is not considered representative of a significant potential risk to human health however may be indicative of a benzene source within the asbestos landfill. It is noted that the adopted recreational screening levels were not exceeded on either of the two sampling events.

Groundwater from monitoring wells within this AEC reported copper and zinc concentrations greater than the adopted ecological screening values. As metals have been identified at concentrations exceeding the adopted screening criteria in groundwater within all AECs a consolidated discussion of this issue is presented in *Section 5.4*.

### **5.3.17**

#### ***VQ - Dust Line***

##### *Background*

The Dust Line is an aboveground pipeline which transfers dust from the operational area of the Site to the Ash Dam. The asbestos register for the Site indicates that the dust pipes are constructed of asbestos containing materials (ACM).

Site personnel indicated that the pipe had been treated with paint to minimise the release of ACM to the environment. Investigations were undertaken to assess whether soil in the vicinity of the pipeline has been impacted by asbestos fibres, from the degradation of this equipment.

*AEC Methodology and Investigation Field Observations*

Twelve surface soil samples were collected from immediately beneath the Dust Line along the accessible aboveground section which is approximately 1.2 km in length. The sampling density is approximately 1 sample per 100 m along the targeted length of the pipework. A grid based inspection, in accordance with Western Australian (WA) Department of Health (DOH) (2009) *Guidance for the Assessment, Remediation and Management of Asbestos-Contaminated Sites*, could not be achieved due to the physical presence of piping (including asbestos) within the immediate vicinity.

Groundwater in this AEC was considered as part of adjacent AECs, and there were no monitoring wells targeted to this AEC. The sampling locations within this AEC are presented on *Figure 6.5 of Annex A*. Relevant borehole logs are presented within *Annex D*.

No field indicators of contamination, such as staining or odours were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.18*.

**Table 5.18** *Field Observations Summary - AEC VQ*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VQ_SB01	0.2	None	0
VQ_SB02	0.2	None	0
VQ_SB03	0.2	None	0
VQ_SB04	0.2	None	0
VQ_SB05	0.2	None	0
VQ_SB06	0.2	None	0
VQ_SB07	0.2	None	0
VQ_SB08	0.2	None	0
VQ_SB09	0.2	None	0
VQ_SB10	0.2	None	0
VQ_SB11	0.2	None	0
VQ_SB12	0.2	None	0

*Soil Analytical Results and Discussion*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 6 of Annex B*.

Fibrous asbestos detected in three soil samples from this AEC (VQ\_SB06\_0.1, VQ\_SB11\_0.2, VQ\_SB12\_0.2). However, the measured concentrations of asbestos fines and fibrous asbestos (%w/w) did not exceed the adopted human health screening value.

Fibrous chrysotile asbestos was detected in a soil sample from VQ\_SB06 at a depth of 0.1 m bgl and the laboratory report identified “several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm”. Fibrous chrysotile and amosite asbestos was detected in a soil sample from VQ\_SB11 at a depth of 0.2 m bgl and the laboratory report identified “several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm”. Amosite asbestos was detected in a soil sample from VQ\_SB12 at a depth of 0.2 m bgl and the laboratory report identified “two loose bundles of friable asbestos fibres approximately 3 x 1 x 0.5 mm”.

It is noted that this asbestos assessment is considered indicative in nature, and additional analysis, in accordance with ASC NEPM (2013) would need to be undertaken to comprehensively delineate asbestos impacts associated with this pipework. Given the presence of asbestos in the matrix of the pipeline materials, appropriate ongoing Workplace Health and Safety (WHS) management should be maintained.

### 5.3.18 *VR – Sediments in Surrounding Waterways*

#### *Background*

The Site is located in the Lake Macquarie catchment area, with Lake Macquarie identified as the main local hydrological feature. There are four Licensed Discharge Points (LDPs) for water from the Power Station under Environmental Protection License (EPL) 761, including;

- LDP 1 - Cooling Water outlet to Wyee Bay;
- LDP 2 - Discharges to the cooling water outlet from the ash water recycle system;
- LDP 4 - Release of seepage from Ash Dam rehabilitated area at the v-notch weir located at the toe of the Dam; and
- LDP 18 - Over boarding of the Ash Dam into the Wyee Creek diversion channel and Wyee Creek.

All B Station drains are also ultimately discharged via the Chain Valley Retention Basin A ('Lake Rodham') to Chain Valley Bay.

Lake Macquarie sediments and surface water have been identified as a potential AEC due to the discharges that these waterways receive from the Power Station, which include:

- cooling water that has passed through the plant and therefore:
  - has been treated with biocides and anti-scale chemicals;
  - is heated;
  - may contain traces of oil;
  - has potentially elevated salts and metals due to concentration created by evaporation.
- treated effluent from the oil-water separator associated with the operational site drainage network;
- overflow and potential seepage from the Ash Dam and associated tributary streams;
- stormwater runoff from across the Site; and
- groundwater from across the Site.

Surface water samples are collected from Lake Macquarie on a regular basis, as a part of the EPL conditions associated with the operation of the Site but the parameters analysed generally have not included metals (Delta Electricity, 2014). Discharges to Wyee Creek are also monitored when they exceed 2 hours in duration. These monitoring events identified exceedances of the ANZECC (2000) trigger values for marine water for metals and concentrations of selenium in excess of the ANZECC (2000) low reliability trigger value for marine water.

While some environmental assessment has been undertaken in this area, it is not considered that suitable characterisation of environmental conditions has been established. Given the absence of sufficient previous detailed environmental characterisation work at the Site, the numerous discharge points and sources of potential contaminants, further investigation was considered to be required to provide a baseline assessment of sediment and surface water conditions in this AEC.

This investigation focused on Chain Valley Bay, Mannering Bay, Wyee Bay, and Wyee Creek. Chain Valley Bay is located immediately to the north east of the Site. Mannering Bay, with Wyee Bay immediately beyond, is located to the north of the Site. Wyee Creek and the Wyee Creek diversion channel are located along the north western site boundary and function as part of the Ash Dam overflow system.

Recreational fishing and boating activities are undertaken in Lake Macquarie. Chain Valley Bay Reserve is located 1 km south of the operational area. This reserve is publically accessible, however it was noted during these investigation works that public use of this area appeared to be infrequent. Further to this, the reserve is heavily vegetated in most areas, with small clearings available for public use and few amenities which would suggest that the reserve is not frequently used.

The *Delta Coast Land Management Plan* (GHD, 2012) identified a number of sensitive aquatic environments within the Site buffer zones and adjacent areas. *State Environmental Planning Policy No. 14* (SEPP 14) wetlands are located in the vicinity of the Site; immediately to the north of the Ash Dam toe drain around the fringes of Mannering Bay, on the northern edge of Mannering Bay and along the waterways within the northern buffer zones.

During the additional round of sampling undertaken on 27 May 2014, surface water from the toe drain was sampled. It was noted that this water was not flowing and appeared stagnant with orange staining. This sample was analysed for metals. The laboratory results are shown in Table 5o, as the toe drain is located in Ash Dam AEC (VO).

#### *AEC Methodology and Investigation Field Observations*

Sediment and surface water were collected from 23 sampling locations. Sampling locations were distributed around the AEC as illustrated in *Figures 6.2 and 6.4 of Annex A*.

The field notes recorded during the sediment and surface water sampling activities are presented in *Annex E*. Logs of the sediment cores are presented in *Annex D*. A summary of the field parameters recorded during the surface water sampling is presented in *Table 3 of Annex B*.

The sediment collected in Wyee Creek and Mannering Bay were typically silty or sandy clay, with the exception of sample VR\_M\_SS05 where the top 50 cm was reported to comprise silty sand and gravelly sand. Sediments in Chain Valley Bay and Wyee Bay comprised of silt.

No field indicators of contamination, such as staining, sheen, or odours were noted within this AEC.

*Sediment Analytical Results*

The sediment analytical results compared to the adopted screening values are presented in *Table 4.r of Annex B*.

Measured concentrations of Total Recoverable Hydrocarbons were detected above the LOR in a number of individual samples collected from within Wyee Creek and Wyee Bay, however the measured concentrations did not exceed the adopted screening values. Measured concentrations of BTEX in sediment samples analysed were also below the corresponding laboratory LORs.

Phenols were detected at concentrations marginally above the laboratory LORs in two of the sediment samples collected from within Wyee Creek. Screening criteria for the individual phenols detected were not available, but the total concentration of phenols measured in the samples did not exceed the RIVM (2001) ecological serious risk concentration for phenol.

Polycyclic Aromatic Hydrocarbons were detected at concentrations marginally above the corresponding laboratory LORs but below the adopted screening values in a number of individual samples collected from across the AEC. Exceedances of the ISQG-low values for acenaphthene, anthracene, naphthalene, fluorene and/or phenanthrene were recorded in all of the samples collected from within Wyee Bay. Total PAHs only marginally exceeded the ISQG-Low value of 4 mg/kg in the sediment samples collected from depths up to 0.2 m below the sediment surface at VR\_W\_SS02 (5.38 mg/kg) and VR\_W\_SS03 (5.05 mg/kg), which are located in the central portion of Wyee Bay, in close proximity to the mouth of Mannering Bay. The source of these PAH impacts has not been identified, but could potentially include inputs from the Power Station or a range of external sources, such as recreational boating or mining within surrounding areas.

Measured TOC values in Wyee Bay were reported between 5.23% and 15.6%. ANZECC (2000) recommends normalizing the ISQG values to TOC to account for the reductions in bioavailability that can be associated with the presence of organic matter in sediment. Following the normalisation of the measured PAH concentrations to 1% TOC, the resultant values did not exceed the adopted screening values.

Metal concentrations in sediment were generally below the adopted screening values. Cadmium was identified in individual samples collected from within Wyee Creek, the control area and Wyee Bay at concentrations marginally in excess of the ISQG-low value. Two sediment samples collected from within Wyee Bay also returned copper concentrations marginally in excess of the ISQG-low values.



In the absence of ANZECC/ARMCANZ (2000) ISQG values for selenium, the sediment results were compared against the British Columbia (2001) sediment guideline for selenium in marine sediment 2 mg/kg. Exceedances of this screening value were identified in numerous samples collected from within the lower reaches of Wyee Creek and within Mannering Bay. A single sample from the control area also demonstrated a selenium concentration of 4 mg/kg.

The maximum selenium concentration reported in Wyee Creek was 26 mg/kg, with this result recorded at VR\_C\_SS02, located in the portion of the creek that flows along the northern edge of Mannering Bay. The selenium concentrations measured in sediment samples collected from within Wyee Creek generally increased along the Creek towards Mannering Bay. The most elevated selenium results within the Wyee Creek sediment were generally recorded in the surface samples.

Relatively consistent concentrations of selenium were recorded throughout Mannering Bay, with between 4 and 8 mg/kg reported in the surface samples and between < 1 mg/kg and 6 mg/kg reported in the deeper samples.

#### *Surface Water Analytical Results*

The surface water analytical results were compared to the adopted ecological and human health (recreational) screening values, as presented in *Table 5.r* of *Annex B*.

The measured concentrations of phenols, BTEX, TRH and PAH were less than the corresponding laboratory LORs and the adopted screening values in all of the surface water samples analysed.

Zinc and copper concentrations exceeded the adopted ecological screening values in approximately 60% the surface water samples. The copper exceedances were generally marginal, at less than twice the adopted screening values whereas the zinc concentrations were up to approximately 4.5 times the screening value.

Three marginal exceedances of the cobalt screening values were recorded in surface water samples collected from within Wyee Creek. The metal concentrations did not exceed the adopted human health (recreational) guidelines in any of the surface water samples.

#### *Discussion*

##### Sediment

As noted in Simpson *et al.* (2005), the ISQG-low values represent concentrations below which the frequency of adverse biological effects is expected to be very low, while the ISQG-high represents concentrations above which adverse biological effects are expected to occur more frequently.

If a detected concentration exceeds the relevant ISQG, it does not necessarily mean that adverse biological effects will occur, but rather that more detailed consideration of the results may be required.

Cadmium was identified in individual samples collected from within Wyee Creek, the control area and Wyee Bay at concentrations marginally in excess of the ISQG-low value. Two sediment samples collected from within Wyee Bay also returned copper concentrations marginally in excess of the ISQG-low values. The distribution of these impacts is not suggestive of significant cadmium and cobalt impacts in Lake Macquarie sediments as a result of the operation of the Vales Point Power Station.

Selenium enrichment in sediment has previously been assessed in Lake Macquarie and has been attributed to atmospheric deposition from the power stations, dispersion of dissolved or particulate-bound selenium from fly ash, urban runoff and sewage (Kirby *et al.*, 2001). Selenium concentrations as high as 17.2 mg/kg were reported in Mannering Bay in a published scientific report (Peters *et al.*, 1999). Exceedances of the selenium screening value were identified in numerous samples collected from within the lower reaches of Wyee Creek and within Mannering Bay. The maximum selenium concentration reported in Wyee Creek was 26 mg/kg, with the selenium concentrations measured in sediment samples collected from within Wyee Creek generally increasing along the Creek towards Mannering Bay. Relatively consistent concentrations of selenium were recorded throughout Mannering Bay, at up to 8 mg/kg.

It is considered likely that discharges from the Ash Dam, potentially including licensed discharges, runoff and groundwater flow have contributed to the selenium impacts identified in Wyee Creek and Mannering Bay. Other potential sources within the catchment include mines, other power stations and other industries. The selenium concentrations identified in the current assessment were of the same order of magnitude as those identified in historic investigations (e.g. Peters *et al.*, 1999), suggesting that the selenium load in Wyee Creek and Mannering Bay sediments have not increased significantly in recent years.

#### Surface Water

Overall, the surface water results do not suggest that there has been significant impact on surface water quality within Wyee Creek, Mannering Bay, Wyee Bay, or Chain Valley Bay as a result of inputs from the Site.

Copper and cobalt concentrations marginally exceeded the adopted ecological screening values were identified in a number of samples, but a clear link between these samples and the Site was not apparent in the data. Zinc concentrations exceeded the adopted ecological screening values in approximately 60% the surface water samples, suggesting that background conditions may contribute to these concentrations.

The samples collected from the upper reaches of Wyee Creek generally demonstrated the highest zinc concentrations, which may reflect a contribution from the Ash Dam but which may also reflect the fact that these samples were collected in a riparian rather than estuarine environment and as such are more likely to be influenced by factor such as runoff and erosion.

### 5.3.19 VS - TransGrid Switchyard

#### *Background*

The TransGrid Switchyard is located on the western side of the cooling water canal, adjacent to the chlorine plant, hydrogen plant and Site canteen. The Vales Point Fire Training Area is located adjacent to the TransGrid Switchyard to the south east. The Switchyard is fenced and largely covered with hardstanding. The TransGrid Switchyard is not owned or operated by Delta Electricity. The COPC within the switchyard are related to the current use and storage of transformer oil and historically the transformer oil may have contained PCBs. The investigations within this AEC included the non-operational lands outside the TransGrid Switchyard and were distributed around the perimeter the target migration of potential contaminants from this AEC towards sensitive receptors.

No soil or groundwater investigations are known to have been completed within this AEC to date. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Methodology and Investigation Field Observations*

A total of six soil investigation bores, five of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The investigations within this AEC included the non-operational lands outside the TransGrid Switchyard and were distributed around the perimeter the target migration of potential contaminants from this AEC towards sensitive receptors.

Data collected from this AEC has also been used to evaluate the presence of COPCs in soils and groundwater that may be associated with the Vales Point Fire Training Area.

No field indicators of contamination, such as staining or odours were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 8.8 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.19*.

**Table 5.19** *Field Observations Summary – AEC VS*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VS_MW01	5	None	0-0.8
VS_MW02	6.0	None	0-1.4
VS_MW03	6.3	None	0.1-0.9
VS_MW04	5.0	None	0- 0.3
VS_MW05	5.0	None	0.1-8.8
VS_SB01	3.0	None	0-0.2

Groundwater parameters recorded during the groundwater sampling works are presented in *Table 3 of Annex B*. Field parameters indicated brackish and slightly acidic groundwater conditions.

No indications of contamination, such as sheen or odours, were observed during groundwater sampling within this AEC. A summary of field observations from the groundwater sampling works are presented within *Table 3 of Annex B*.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.s of Annex B*.

Measured concentrations of COPCs were below the adopted screening values in the soil samples collected from within this AEC. The majority of measured concentrations were also below or close to the corresponding laboratory LOR.

Measured concentrations of various heavy metals were above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. However, all concentrations of heavy metals in soils within this AEC were below the adopted screening values.

Asbestos was not detected in any of the soil samples analysed from this AEC.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.s of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*

Measured concentrations of the majority of the COPCs were below the laboratory LOR and adopted ecological and human health screening values in all groundwater samples analysed, with the exception of metals in groundwater.

*Discussion*

No exceedances of the adopted screening values were identified in soil samples collected from within this AEC.

Groundwater from monitoring wells within this AEC reported metal concentrations greater than the adopted ecological screening values and a consolidated discussion of this issue is presented in *Section 5.4*.

**5.3.20 VT - Fly Ash Plant***Background*

The Fly Ash Plant is located immediately adjacent to the Power Station for the purpose of reusing the fly ash that is produced as a by-product of generating power. The majority of this AEC is covered in hardstanding and comprises a truck turning circle. Also located within this AEC are a weigh bridge and overhead silos.

It is understood that the Plant is not operated by Delta and that fly ash is transferred directly from the Power Station into the overhead silos located above a weighbridge. Trucks are then filled from overhead while stationed on the weighbridge. The fly ash is then trucked from the Site.

The Fly Ash Plant is a potential AEC due to the storage and handling of ash within the area and heavy vehicle traffic passing through the area. No soil or groundwater investigations are known to have been completed within this AEC to date. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

*AEC Methodology and Investigation Field Observations*

A total of three soil investigation bores, two of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater. The sampling locations within this AEC are presented on *Figure 6.5* of *Annex A*. Relevant borehole logs are presented within *Annex D*.

No field indicators of contamination, such as staining or odours were noted within this AEC. No staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 1.9 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.20*.

**Table 5.20** *Field Observations Summary – AEC VT*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VT_MW01	7.5	None	0-1.0
VT_MW03A	1.5	None	0-0
VT_MW03B	7.0	None	0-1.9

Groundwater samples were collected from the two groundwater monitoring wells present within the AEC. Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Field parameters indicated fresh to brackish groundwater conditions and pH values of 4.1 were recorded in both monitoring wells indicating slightly acidic groundwater conditions.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.t of Annex B*.

The majority of measured concentrations of COPCs were also below or close to the corresponding laboratory LOR.

Measured concentrations of various heavy metals were reported above the corresponding laboratory LOR in a number of soil samples collected from within this AEC. All concentrations were however below the adopted screening values, with the exception of copper and zinc in the soil sample collected from VT\_MW01 at 0.2 m bgl which exceeded the adopted ecological screening values for commercial/industrial sites.

Asbestos was not detected in any of the soil samples collected from within this AEC.

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.t of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

With the exception of metals, the measured concentrations of the COPCs were below the adopted screening values in all groundwater samples analysed from within this AEC.

#### *Discussion*

Exceedances of the adopted screening values for zinc and copper were identified in a shallow soil samples collected from within this AEC.

Given the operational nature of this AEC and the fact that it is fenced and primarily covered in hardstanding, these exceedances are not considered to represent a significant risk to the environment under the ongoing use of the Site as a Power Station.

Groundwater from monitoring wells within this AEC reported metal concentrations greater than the adopted ecological screening values and a consolidated discussion of this issue is presented in *Section 5.4*.

### 5.3.21 *VU - Buffer Lands and Boundaries*

#### *Background*

Much of the area surrounding the operational areas of the Site and the Ash Dam is a buffer zone. Land within this AEC is largely undeveloped and is currently dominated by bushland and decommissioned and operational coal mines. The *Delta Coast Land Management Manual* (GHD, 2012) indicates that threatened flora and fauna has been identified in the buffer lands surrounding the Ash Dam and Wyee Rail Coal Unloader.

No soil or groundwater investigations are known to have been completed within this AEC to date. Given the absence of previous environmental characterisation work, further investigation was considered to be required to provide a baseline assessment of soil and groundwater conditions in this area.

#### *AEC Methodology and Investigation Field Observations*

A total of twenty-two soil investigation bores, seventeen of which were completed as groundwater monitoring wells, were advanced within this AEC to assess potential impacts to soil and groundwater.

The sampling locations within this AEC are presented on *Figure 6.1 to 6.6* of *Annex A*. Relevant borehole logs are presented within *Annex D*.

Ash, shale and black staining were observed at VU\_MW18 at a depth of 0.8-0.9 m bgl. An organic odour was noted at VU\_MW19 at a depth of 0.4 to 0.65 m bgl and was associated with a sandy clay. The laboratory results did not indicate the presence of COPCs in soil above the screening values associated with the observed black staining or organic odour. No other field indicators of contamination, such as staining or odours were noted within this AEC. No further staining or unusual odours were detected at any depth through the sampled soil profile. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 1.9 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 5.21*.

**Table 5.21** *Field Observations Summary – AEC VU*

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v -isobutylene equivalents)
VU_MW01	3.9	None	0-1.9
VU_MW02	6.5	None	0-9.6
VU_MW03	12	None	0-3.9
VU_MW04	9	None	0-6.4
VU_MW05	9.5	None	0-2.8
VU_MW06	10	None	0-3.8
VU_MW07	8.7	None	0-2.2
VU_MW08	13.4	None	0-7.6
VU_MW09	15	None	0-2.3
VU_MW10	5.5	None	0-3.8
VU_MW11	0.1	None	0
VU_MW12	7	None	0-2.1
VU_MW13	11	None	0-3.3
VU_MW14	12	None	0-0.1
VU_MW15	6	None	0-0.1
VU_MW16	9.5	None	0-2.4
VU_MW17	7.5	None	0-1.9
VU_MW18	1.5	Black staining	0-0.2
VU_MW19	1.4	Organic odour	0-0.4
VU_MW20	13	None	0-1.6
VU_SB01	0.4	None	0-0.1
VU_SB02	1.5	None	0
VU_SB03	3	None	0-0.1

Groundwater parameter measurements collected during the groundwater sampling works are presented in *Table 3 of Annex B*. Electrical conductivity measurements indicated fresh to brackish groundwater conditions. Groundwater samples collected from VU\_MW02, VU\_MW15 and VU\_MW16 reported pH values of less than 4, which may be indicative of Acid Sulfate Soil (ASS) conditions. VU\_MW02 is located to the north east of the operational area adjacent to Lake Macquarie and VU\_MW15 is located to the north west of the TransGrid Switchyard (AEC VS). VU\_MW16 is located to the east of the Ash Dam. Field pH measurements recorded across the remainder of this AEC indicated acidic to neutral groundwater conditions.

#### *Soil Analytical Results*

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Table 4.u of Annex B*.

Measured concentrations of COPCs were below the adopted human health screening values in all soil samples collected from within this AEC. Concentrations of TRH were reported above the laboratory LOR in two samples, VU\_MW20 at a depth of 0.5 m bgl and VU\_MW01 at a depth of 1.5 m bgl however the concentrations did not exceed the adopted human health screening values.



Measured concentrations of COPCs were below the adopted ecological screening values (commercial/industrial) in all soil samples collected from within this AEC. Concentrations of copper, nickel and zinc exceeded the adopted ecological screening values for areas of ecological significance in a number of soil samples collected across this AEC, including deep samples (> 2 m bgl) in VU\_MW17, VU\_MW04, VU\_MW14 and VU\_MW10 and shallow samples (< 2 m bgl) in VU\_MW01, VU\_MW03 and VU\_SB03. .

#### *Groundwater Analytical Results*

Groundwater analytical results compared to the adopted screening values are presented in *Table 5.u of Annex B*. Exceedances of the adopted screening values are also graphically presented in *Figure 9 of Annex A*.

Measured concentrations of the majority of the COPCs were below the laboratory LOR in all groundwater samples analysed. The exceptions to this were detections of various metals within groundwater across this AEC.

#### *Discussion*

No exceedances of the adopted human health screening values were identified in soil samples collected from within this AEC. Concentrations of copper, nickel and zinc exceeded the adopted ecological screening values for *areas of ecological significance* (as defined in ASC NEPC, 2013) in a number of deep soil samples (>2 m bgl) and shallow soil samples (<2 m bgl). However, the concentrations of copper, nickel and zinc in all soil samples analysed in this AEC were below the adopted ecological screening values for commercial/industrial sites.

The EILs apply principally to contaminants in the top 2 m (i.e. shallow soil samples) (ASC NEPC, 2013) and therefore the screening value exceedances identified in the deep samples are not considered to be representative of a significant potential risk to the terrestrial environment of these areas.

The shallow soil samples demonstrating exceedances of the ecological screening values for *areas of ecological significance* (VU\_MW01, VU\_MW03 and VU\_SB03) are located on the eastern side of the operational area. The *Delta Coast Land Management Manual* (GHD, 2012) did not identify threatened or endangered species in this area and hence the adoption of the screening values for the protection of *areas of ecological significance* is overly conservative for these samples. Therefore, on the basis that the measured concentrations did not exceed the ecological screening values for commercial/industrial areas, the measured metal concentrations are not considered to represent a significant potential risk to the environment under the ongoing use of the Site as a Power Station.

#### 5.4 METAL AND METALLOID CONCENTRATIONS IN GROUNDWATER

Metals and metalloids can occur naturally in groundwater, and an assessment of background conditions forms an integral part of the evaluation of metal and metalloid concentrations reported. This is especially relevant where potential off-site sources of metals and metalloids exist, including historical and current underground coal mining works which occur extensively in the area surrounding and underlying the majority of the Site, including the Ash Dam.

For the purposes of this assessment, the following monitoring wells have been put forward as background monitoring wells; VO\_MW09 to VO\_MW11 and VU\_MW17. These monitoring wells are located up-hydraulic gradient of all identified on-site sources. pH levels and ORP (two key controls on metal and metalloid solubility) in the aforementioned monitoring wells fell within the mid-range of measurements recorded across the monitoring well network at the Site, with pH measurements from the background monitoring wells varying between 3.8 to 5.7 and ORP between -82 mV and 318 mV (site-wide groundwater pH and ORP measurements varied between 3.3 and 6.8 and -259 mV and 500 mV respectively).

These monitoring wells were considered as the general background data points for the Site and are referred to as the *Background Monitoring Wells* in the remainder of the report.

The concentrations of metals in groundwater have been compared to the *Background Monitoring Wells* (as applicable), and for the purposes of this assessment, concentrations equalling or exceeding the maximum background concentrations by a factor of two were considered as potentially indicative of concentrations above background values. It is noted that a limited number of monitoring wells are available as background monitoring wells and that only one round of data is available for comparison of reported concentrations from these monitoring wells to the rest of the monitoring network established during the Stage 2 ESA.

The evaluation of metal(loid) concentrations in relation to background conditions based on the approach outlined here should therefore be seen as a preliminary review of background conditions given the relatively limited nature of the background dataset. While the background dataset is limited, the approach does allow for the preliminary identification of potential background conditions.

Note that all the metal and metalloid (including arsenic and selenium) concentrations described below are for field filtered samples (filtered with single-use 0.45 µm filters), with concentration ranges and averages based on primary samples only.

*Arsenic*

Arsenic concentrations ranged from the LOR of <1 µg/L to 184 µg/L with an average concentration of 5.5 µg/L across the monitoring well network. Concentrations equalling or exceeding the lowest adopted screening value of 10 µg/L (drinking water criteria) were limited to 12 of the 117 monitoring wells sampled. Samples with exceedances of the adopted screening values were taken from one monitoring well located at the vehicle refuelling depot, and a number of monitoring wells located downgradient of the ash dam.

In the *Background Monitoring Wells* arsenic concentrations averaged 1 µg/L with a maximum reported concentration of 3 µg/L. Background concentrations were below the assessment criteria and the elevated arsenic concentrations are therefore not considered attributable to background concentrations.

*Cobalt*

Cobalt concentrations ranged from the LOR of 0.9 µg/L to 169 µg/L with an average concentration of 19 µg/L across the groundwater monitoring well network. Concentrations equalling or exceeding the lowest adopted screening values of 1 µg/L (marine adopted ecological screening values) were reported for 58 of the 64 monitoring wells sampled for cobalt.

Samples with exceedances of the adopted screening values were taken from monitoring wells spread across the Site, including the former A Station power block, the water treatment plant, transformer area, vehicle refuelling area, waste oil storage area, Wyee rail coal unloader area, coal storage area and ash dam.

Cobalt concentrations In the *Background Monitoring Wells* averaged 35 µg/L with a maximum reported concentration of 43 µg/L. Reported concentrations a factor of two above the maximum reported background concentration were limited to two monitoring wells (VO\_MW04 and VO\_MW06) located downgradient of the ash dam and one monitoring well (VJ\_MW09) located at the coal storage area. Reported concentrations above what can be considered as the background levels are therefore highly localised to either the coal storage area or the ash dam compared to the number of samples exceeding the adopted assessment values.

*Copper*

Copper concentrations ranged from the LOR of <0.5 µg/L to 596 µg/L across the groundwater monitoring well network, with an average concentration of 13 µg/L. Concentrations equalling or exceeding the lowest adopted screening values of 1.3 µg/L (marine adopted ecological screening values) were recorded in samples from 91 of the 117 monitoring wells sampled.

Samples reporting exceedances of the adopted screening values for copper were collected from monitoring wells spread across the Site, including the former A Station and B Station power blocks, the transformer area, vehicle refuelling area, waste oil storage area, Wyee rail coal unloader, coal storage area, sewage treatment plant and Ash Dam.

Copper concentrations in *Background Monitoring Wells* averaged 7 µg/L with a maximum reported concentration of 18 µg/L. Reported concentrations a factor of two above the maximum reported background concentration were limited to a total of eight monitoring wells located at the vehicle refuelling depot, the fuel oil installation area and downgradient of the Ash Dam.

#### *Lead*

Lead concentrations ranged from the LOR of <1 µg/L to 231 µg/L across the groundwater monitoring well network, with an average concentration of 12 µg/L. Concentrations equalling or exceeding the lowest adopted screening values of 4.4 µg/L (marine adopted ecological screening values) were identified in samples from 35 of the 117 monitoring wells sampled. Monitoring wells with samples exceeding the adopted screening values were located predominantly in the vehicle refuelling area, mobile plant maintenance area, Wyee rail coal unloader and at the ash dam. Exceedances were however also noted at the former A Station power block, sewage treatment plant, contaminated wastewater treatment system and waste oil storage area.

In the *Background Monitoring Wells* lead concentrations averaged 7 µg/L with a maximum reported concentration of 20 µg/L. Reported concentrations a factor of two above the maximum reported background concentration were limited to a total of eight monitoring wells, located in the mobile plant maintenance area, the switchyard and downgradient of the ash dam.

#### *Manganese*

Manganese concentrations ranged from below the LOR of 11 µg/L to 17 300 µg/L across the groundwater monitoring well network, with an average concentration of 1287 µg/L. Concentrations exceeding the adopted screening values of 500 µg/L (drinking water criteria) were identified in samples from 23 of the 64 monitoring wells sampled. Samples with exceedances of the adopted screening values were taken from monitoring located in the Wyee rail coal unloader area, the mobile plant maintenance area, the coal storage area and ash dam.

Manganese concentrations in the *Background Monitoring Wells* averaged 1187 µg/L with a maximum reported concentration of 2290 µg/L.

Reported concentrations a factor of two above the maximum reported background concentration were limited to three monitoring wells; one monitoring well located at the mobile plant maintenance area (VK\_MW07), one monitoring well at the coal storage area (VJ\_MW09) and one monitoring well located downgradient of the ash dam (VO\_MW06).

#### *Nickel*

Nickel concentrations ranged from below the LOR of  $<0.5 \mu\text{g/L}$  to  $133 \mu\text{g/L}$  across the groundwater monitoring well network, with an average concentration of  $15 \mu\text{g/L}$ . Concentrations exceeding the lowest adopted screening value of  $20 \mu\text{g/L}$  (drinking water criteria) were identified in samples from 32 of the 117 monitoring wells sampled. Samples with exceedances of the adopted screening values were taken from monitoring wells spread across the Site, including the former A Station and B Station power blocks, the main store, vehicle refuelling area, mobile plant maintenance area, the coal storage area, chlorine plant and ash dam.

Nickel concentrations in the *Background Monitoring Wells* averaged  $14 \mu\text{g/L}$  with a maximum reported concentration of  $32 \mu\text{g/L}$ . Reported concentrations a factor of two above the maximum reported background concentration were limited to three monitoring wells located downgradient of the ash dam (VO\_MW04, VO\_MW06 and VO\_X\_MW02).

#### *Selenium*

Selenium concentrations ranged from below the LOR to  $276 \mu\text{g/L}$  across the groundwater monitoring well network, with an average concentration of  $16 \mu\text{g/L}$ . Concentrations exceeding the screening value of  $10 \mu\text{g/L}$  (drinking water criteria) were identified in samples from nine of the 63 monitoring wells sampled for selenium. Monitoring wells with samples that exceeded the adopted screening values were limited to one location (VK\_MW06) at the mobile plant maintenance area and eight monitoring wells at the ash dam.

Selenium concentrations in the *Background Monitoring Wells* were below the laboratory LOR (which varied between  $<0.1 \mu\text{g/L}$  to  $<10 \mu\text{g/L}$ ) with the highest reported concentration being  $10 \mu\text{g/L}$  (on a sample with a laboratory LOR of  $10 \mu\text{g/L}$ ). Reported concentrations measuring a factor of two above the maximum reported background concentration included samples taken from eight monitoring wells, all located downgradient of the ash dam.

*Zinc*

Zinc concentrations ranged from 6 µg/L to 1200 µg/L across the groundwater monitoring well network, with an average concentration of 63 µg/L. The majority of monitoring wells (108/117) exceeded the adopted screening values of 15 µg/L (marine adopted ecological screening values).

Zinc concentrations in the *Background Monitoring Wells* averaged 65 µg/L, with a maximum reported concentration of 116 µg/L. Reported concentrations measuring a factor of two above the maximum reported background concentration included samples taken from one monitoring well, VO\_MW04 located downgradient of the ash dam.

*Potential Influence of Acid Sulfate Soils*

Quaternary alluvial sediments that may contain sulfides liable to the creation of acid sulfate soil conditions when oxidised have been identified in locations near the marine environment, specifically in the vicinity of VO\_MW04 where a pH of 3.6 has been measured and discoloured water ponding typical of acid sulfate soil conditions observed.

The ash dam was built in the course of Mannering Creek and the ash dam deposits are therefore expected to be largely underlain by quaternary alluvial sediments. Disturbance of the sediments during construction of the ash dam, and/or infiltration of ash dam water (that would be expected to be largely oxygenated) into the underlying sediments, may have resulted in the creation of acid sulfate soil conditions with naturally occurring sediments contributing to the elevated metal concentrations observed in groundwater.

pH values of less than 4 were recorded in monitoring wells VO\_MW04, VO\_MW06, VO\_MW12, VO\_MW18 and VO\_MW19, which may indicate the presence of ASS conditions. VO\_MW04 is located near the Ash Dam toe drain, VO\_MW06 is located on the north western boundary of the Ash Dam and VO\_MW12 is located near the discharge point for the Ash Dam into Wyee Creek. VO\_MW18 and VO\_MW19 are located immediately to the east of the Ash Dam.

It is noted that relatively acidic groundwater conditions (with pH levels below 4.5) have been observed in a relatively large number of groundwater monitoring well locations across the Site, including a number of monitoring wells installed in the Munmorah Conglomerate and located away from the alluvial sediments (including background monitoring well VU\_MW17 with a pH of 3.8). Relatively acidic conditions are therefore not restricted to areas where disturbed alluvial sediments may be located, as a result of the construction of the ash dam.

*Summary*

Based on the preliminary assessment of background conditions outlined in this report, metal concentrations seen as indicative of background values were generally higher than the lowest adopted screening criteria. The majority of monitoring wells across the Site reported metal concentrations that did not exceed concentrations seen as indicative of background conditions. Specifically for cobalt, copper, nickel and zinc, the number of monitoring wells with samples that have concentrations above background values were generally an order of magnitude less than the number of monitoring wells with exceedances of the adopted assessment criteria (i.e. one tenth of the number of samples exceeding the adopted screening criteria). For lead and manganese, the number of samples with concentrations above background values was at least a factor of four less than the number of samples exceeding the adopted screening criteria.

Conversely, based on the approach to assessing background conditions as discussed above, the arsenic exceedances and the majority of selenium exceedances of the assessment criteria cannot be attributed to background conditions. Where concentrations of metal(loids) in groundwater were measured above background values, impact generally appears to be localised in distinct areas of the site with the main potential source areas being the vehicle refuelling depot, the coal storage area and the ash dam. The majority of samples with concentrations reported above the background values were taken from monitoring wells located downgradient of the ash dam.

Based on the assessment outlined in the report the ash dam appears to present a primary source of arsenic and selenium to groundwater. The data further indicates that the ash dam may act as a secondary source of cobalt, copper, lead, manganese, nickel, and zinc, contributing to metal concentrations that are generally elevated in background conditions.

If disturbed alluvial sediments underlie the ash dam, these sediments may be contributing to elevated metal(loid) concentrations with potential sulfide oxidation in sediments resulting in acid sulfate conditions. As historical and current underground coal mining works occur extensively in the area surrounding and underlying the majority of the Site (including the ash dam), the mine works and related subsidence effects (which could enlarge fracture surfaces within bedrock) may further have contributed to elevated metal(loid) concentrations observed in groundwater. The long term disposal of waste ash materials, which are known sources of metal contaminants, within the Ash Dam, may also have contributed to metal impacts in the underlying groundwater. The long term storage of coal materials within the Coal Storage Area may also have contributed to the observed metal impacts in groundwater in this area.

Acidic groundwater conditions in the vicinity of the Vehicle Refuelling Area appear to have contributed to the presence of elevated metal concentrations in groundwater, although it is noted that there are also areas of the Site where low pH conditions in groundwater have not resulted in metal concentrations in excess of background conditions.

## 5.5

### *DATA QUALITY*

The data presented in the ESA was considered to generally be of a suitable quality and completeness to provide a baseline of environmental conditions at the Site. Whilst some minor non-conformances have been identified in relation to field and laboratory QA/QC, these are not considered to have a material impact on the outcomes of this assessment. A detailed review of the Data Quality of this assessment is provided in *Annex F*.

Comparison of the laboratory Limit of Reporting (LOR) to the screening values has been undertaken, confirming that the screening values are less than the laboratory LOR, with the exception of the following compounds:

- Some volatile organic compounds in water (including vinyl chloride, chloromethane, bromomethane, 1,2-Dichloroethane, hexachlorobutadiene, 1,2,3-trichlorobenzene and 1,2-dibromomethane) and pentachlorophenol have LORs marginally above the adopted ecological protection criteria and/or above the drinking water guidelines. The assessment results do not suggest that these contaminants are key contaminants of concern.
- PAHs in water, including Benzo(a) pyrene and Carcinogenic PAHs (as BaP TEQ), have LORs above the drinking water and recreational guidelines. The LORs are within the same order of magnitude as the recreational screening value and an order of magnitude above the drinking water guideline. The assessment suggests that these contaminants are not key COPC, as PAH compounds in excess of the screening values have not been identified in groundwater in this assessment.
- TRH (>C10-C16 minus naphthalene) in soils have LORs above the adopted ESL for areas of ecological significance by a factor of 2. This threshold does not apply to soils across the whole site, only being applicable to areas of the Ash Dam (AEC VO) and Wyee Rail Coal Unloader (AEC VN).

Selenium in groundwater has an LOR above the adopted ecological screening value but above the adopted human health screening values. The LOR for selenium in surface water samples collected from within the inlet/outlet canal fell below the adopted ecological screening value and exceedances of the screening criteria were not observed in the surface water samples. On this basis, the LOR non-conformances for selenium in groundwater are not considered to represent a significant data gap in this assessment.



## 6 OVERALL DISCUSSION

The primary objective of this Stage 2 ESA was to develop a baseline assessment of environmental conditions at the Site and within the immediate surrounding receiving environments at or near the time of the transaction. The results of the assessment have also been used to assess:

- The nature and extent of soil and/or groundwater impact on / beneath the Site and in relation to neighbouring sensitive receptors.
- Whether the impacts at the Site represent a risk to human health and/or the environment, based on the continuation of the current use.
- Whether the impact at the Site is likely to warrant notification /regulation under the *CLM Act 1997*.
- Whether material remediation is considered likely to be required.
- Whether the data collected during the assessment was of a suitable quality and completeness to provide a baseline of environmental conditions at the Site.

The overall results of the assessment are discussed herein, with reference to these objectives.

### 6.1 SUMMARY – THE NATURE AND EXTENT OF SOIL, SEDIMENT, GROUNDWATER AND SURFACE WATER IMPACT

A CSM was developed and refined, which identified the following ecological and human receptors:

- indoor and outdoor human health receptors in the form of onsite and offsite workers;
- intrusive maintenance workers both on and offsite;
- offsite residential receptors, living in the vicinity of the operational area or Ash Dam;
- recreational users of Mannering Bay, Wyee Bay and Chain Valley Bay;
- recreational users of Tom Barney Oval;
- aquifers beneath the Site and nearby potable and stock watering wells; and
- ecological receptors, including those in the vegetated buffer lands and aquatic environments of Mannering Bay, Wyee Creek, Wyee Bay and Chain Valley Bay.

Soil, sediment, surface water and groundwater data were compared against published environmental quality levels to provide a screening level assessment of potential risks to these identified receptors. The findings of the screening process indicated that concentrations in soil, sediment, surface water and groundwater generally complied with the adopted screening values, with some exceptions as discussed in the following sections.

### 6.1.1

#### *Onsite Soil*

- The shallow fill material in a single sample from the boundary of the B Station Power Block (AEC VA) at a depth of approximately 0.2 to 0.3 m bgl was observed to have black staining and a hydrocarbon odour. The corresponding laboratory results exceeded the human health screening level for carcinogenic PAHs.
- TRH C<sub>10</sub>-C<sub>16</sub> (excluding naphthalene) was detected at concentrations in excess of the adopted ecological screening value for commercial/industrial areas in individual soil samples collected from the boundary of the former A Station Demolition Area (AEC VB), the Fuel Oil Installation (AEC VG) and Coal Storage Area (AEC VJ).
- Benzo(a)pyrene was detected at concentrations in excess of the adopted ecological screening value for commercial/industrial areas in individual samples collected from the B Station Power Block (AEC VA) and Fuel Oil Installation (AEC VG) at a depth of 0.1 m bgl.
- Copper and zinc concentrations in excess of the ecological screening levels adopted for commercial/industrial areas were identified in individual soil samples collected from the B Station Power Block (AEC VA), Waste Oil Storage area (AEC VF), Fuel and the Water Treatment Plant Area (AEC VI), Chlorine Plant (AEC VM), Asbestos Landfills (AEC VP) and Fly Ash Plant (AEC VT). These impacts were not necessarily attributed to background conditions at the Site and could be related to onsite sources.
- Copper, nickel, zinc and benzo(a)pyrene in excess of the ecological screening levels adopted for ecologically significant areas were identified in individual samples collected from the Wyee Coal Unloader Area (AEC VN), Ash Dam (AEC VO) and Site Buffers and Boundaries (AEC VU).
- Significant quantities of fly-tipped waste, including drummed oils, household waste, wood, steel and plastic were observed in close proximity to the eastern boundary of the Wyee Coal Unloader Area (AEC VN). This area is accessible to the public via a short gravel road off Rutleys Road and the waste is likely to have been dumped illegally by members of the public.

- Asbestos was detected in individual shallow soil samples collected from within the Transformer Area (AEC VC), Chlorine Plant (AEC VM) and in the vicinity of the Asbestos Landfill (AEC VP) at concentrations in excess of the adopted human health screening values for fibrous asbestos and asbestos fines.

The results of the assessment do not suggest the presence of widespread asbestos contamination at the Site. It is noted however that as identified in the ASC NEPM (2013) the vertical boring of soils is not a comprehensive method via which to identify asbestos, however given the objectives of this assessment and the operational constraints, the assessment methodology adopted was considered appropriate. The absence of asbestos impacts across the Site cannot however be guaranteed on the basis of the results of this assessment. Similarly, as with any investigation of this nature, the potential exists for unidentified contamination to exist between the completed sampling locations both within and between AECs.

### 6.1.2

#### *Onsite Groundwater*

- TRH and chlorinated hydrocarbons were reported above the laboratory LOR in groundwater samples collected monitoring wells located around the boundary of the former A Station Demolition Area (AEC VB). The measured concentrations did not exceed the adopted screening values but may be indicative of the presence of unidentified impacts within the former A Station area.
- Groundwater samples from monitoring wells located around the boundary of the former A Station Demolition Area (AEC VB) and Chlorine Plant Area (AEC VM) reported PFOS concentrations in excess of the adopted human health screening level but not the adopted ecological screening level.
- Benzene was detected at concentrations in excess of the adopted human health (drinking water and recreational) screening values in groundwater samples collected from monitoring wells located in the Vehicle Refuelling Area (AECs VH) and a single sample collected from a well downgradient of the Asbestos Landfills (AEC VP).
- Where concentrations of metal(oids) in groundwater were measured above background values, impact generally appears to be localised in distinct areas of the site with the main potential source areas being the Coal Storage Area (AEC VJ) and the Ash Dam (AEC VO). Acidic groundwater conditions in the vicinity of the Vehicle Refuelling Area also appear to have contributed to the presence of elevated metal concentrations in groundwater, although it is noted that there are also areas of the Site where low pH conditions in groundwater have not resulted in metal concentrations in excess of background conditions.

- The majority of groundwater samples that reported concentrations of metals above the background values were collected from monitoring wells located downgradient of the Ash Dam which appears to present a primary source of arsenic and selenium to groundwater. The assessment results also suggest that the Ash Dam is a secondary source of cobalt, copper, lead, manganese, nickel and zinc, contributing to metal concentrations that are already generally elevated in background conditions. The highest concentrations were generally located in the vicinity of the toe drain, along the north western boundary of the Ash Dam and directly to the east of the Ash Dam.
- If disturbed alluvial sediments underlie the ash dam, these sediments may be contributing to elevated metal(loid) concentrations with potential sulfide oxidation in sediments resulting in acid sulfate conditions. Historical and current underground coal mining works in the area surrounding and underlying the majority of the Site could also have enlarge fracture surfaces within bedrock), further contributing to elevated metal(loid) concentrations observed in groundwater. The long term disposal of waste ash materials, which are known sources of metal contaminants, within the Ash Dam, may also have contributed to metal impacts in the underlying groundwater. The long term storage of coal materials within the Coal Storage Area may also have contributed to the observed metal impacts in groundwater in this area.

### 6.1.3 *Offsite Sediments and Surface Waters*

- Cadmium was identified in individual samples collected from within Wyee Creek, the control area and Wyee Bay at concentrations marginally in excess of the ISQG-low value. Two sediment samples collected from within Wyee Bay also returned copper concentrations marginally in excess of the ISQG-low values. The distribution and magnitude of these impacts is not suggestive of significant cadmium, copper and cobalt impacts in Lake Macquarie sediments as a result of the operation of the Vales Point Power Station.
- Exceedances of the adopted selenium ecological screening level were identified in numerous sediment samples collected from within the lower reaches of Wyee Creek and within Mannering Bay. The maximum selenium concentration reported in a sediment sample collected from Wyee Creek was 26 mg/kg, with the selenium concentrations measured in sediment samples collected from within Wyee Creek generally increasing along the Creek towards Mannering Bay. Relatively consistent concentrations of selenium were recorded throughout Mannering Bay, at up to 8 mg/kg.

- Copper and cobalt concentrations marginally in excess of the adopted ecological screening levels were identified in a number of surface water samples, but a clear link between these samples and the Site was not apparent in the data. Zinc concentrations exceeded the adopted ecological screening values in approximately 60% the surface water samples, including a number of the control area samples suggesting that background concentrations are elevated. Elevated background zinc concentrations may contribute to these concentrations in surface water. The samples collected from the upper reaches of Wyee Creek generally demonstrated the highest zinc concentrations, which may reflect a contribution from the Ash Dam but which may also reflect the fact that these samples were collected in a riparian rather than estuarine environment and as such are more likely to be influenced by increased sediment load.

## 6.2 *SUMMARY – DOES THE IDENTIFIED IMPACT REPRESENT A RISK TO HUMAN HEALTH AND/OR THE ENVIRONMENT?*

The approach to the screening of the data gathered in this assessment was to initially adopt the most conservative potential assessment values. The exceedances of the screening values outlined in *Section 4.10* were subsequently assessed on a case by case basis, in light of the specific characteristics of the individual samples and the AEC from which those samples were collected. The conclusions of these further assessments are presented in the following sections.

### 6.2.1 *Onsite Soil*

Benzo(a)pyrene was detected at concentrations in excess of the adopted human health and ecological screening level in a shallow soil sample on the boundary of the B Station Power Block (AEC VA). A single shallow soil sample collected in the vicinity of the Fuel Oil Installation (AEC VG) also reported benzo(a)pyrene at a concentration in excess of the adopted ecological screening level.

Benzo(a)pyrene is a non-volatile compound and therefore exposure to this chemical could only occur through direct contact with the soil or exposure to dust. The majority of these AECs are covered in hardstanding, including the area in which the impacted sampling locations were installed. On this basis, the PAH impacts identified in this location are considered unlikely to represent a significant risk to human health or the environment under the ongoing use of the Site as a Power Station. Actions to prevent direct contact with benzo(a)pyrene impacted soil should however be implemented during any subsurface works undertaken within the affected area of AEC VA, to minimise potential health risks to intrusive workers.

TRH C<sub>10</sub>-C<sub>16</sub> (excluding naphthalene) was detected at concentrations in excess of the adopted ecological screening value for commercial/industrial areas in individual soil samples collected from the boundary of the former A Station Demolition Area (AEC VB), the Fuel Oil Installation (AEC VG) and Coal Storage Area (AEC VJ). The ground surface within AEC VB and AEC VG was largely covered in hardstanding or gravel, including the area in which the impacted sampling locations were installed. The sampling location in AEC VJ was located on the south-western corner of the Coal Stockpile Area approximately 20 m from the edge of the stockpile area in an area of unsealed ground. PAH compounds were also detected in this sample, suggesting the possible contribution of stored coal to the identified TPH impacts in the vicinity of the Coal Stockpile, although visible coal particles were not identified in the sample. The vegetation in this area is limited to sparse areas of grass. On this basis, TRH impacts identified within these AECs are not considered to represent a significant risk to the terrestrial environment.

Copper and zinc concentrations in excess of the ecological screening levels adopted for commercial/industrial areas were identified in individual samples collected from the B Station Power Block (AEC VA), Waste Oil Storage area (AEC VF), Fuel and the Water Treatment Plant Area (AEC VI), Chlorine Plant (AEC VM), Asbestos Landfills (AEC VP) and Fly Ash Plant (AEC VT). With the exception of AEC VP, all of these exceedances were identified in fenced operational areas, either in areas covered with hardstanding or in areas with only limited vegetation. These impacts are therefore considered unlikely to represent a significant risk to the terrestrial environment assuming ongoing commercial industrial use in the current or similar configuration.

The copper and zinc concentrations in the shallow soil sample collected from AEC VP may suggest a hotspot of metals impact in the vicinity of the asbestos landfill, possibly as a result of the waste material buried in this area. The absence of elevated metal concentrations in other soil samples collected from within this AEC however, does not suggest widespread metal impacts in the areas surrounding the asbestos landfills.

Copper, nickel and zinc in excess of the ecological screening levels adopted for ecologically significant areas were identified in individual samples collected from the Wyee Rail Coal Unloader Area (AEC VN) and Site Buffers and Boundaries (AEC VU). The soil samples demonstrating exceedances of the ecological screening levels for areas of ecological significance within AEC VN and AEC VU are located within operational areas. The *Delta Coast Land Management Manual* (GHD, 2012) did not identify threatened or endangered species in these specific areas and hence the adoption of the screening values for the protection of areas of ecological significance is overly conservative for these samples.

As the measured concentrations did not exceed the adopted screening level for commercial/industrial areas, these impacts are not considered to be representative of a significant risk to the terrestrial environment under the ongoing use of the Site as a Power Station.

The concentrations of TRH (C10-C16 excluding naphthalene), benzo(a)pyrene, nickel and zinc measured in individual soil samples around the boundary of the Ash Dam (AEC VO) exceeded the ecological screening levels adopted for areas of ecological significance but not the commercial/industrial ecological screening levels. These results indicate that concentrations of TRH, PAH, nickel and zinc in soil around the boundary of the Ash Dam may be sufficient in some areas to adversely affect sensitive terrestrial organisms. Overall however, a significant adverse effect on the terrestrial environment is not predicted on the basis of these results. It is also noted that the Ash Dam receives licensed discharges of a variety of waste materials, including ash.

Chrysotile and amosite asbestos was detected in individual shallow soil samples collected from within the Transformer Area (AEC VC), Chlorine Plant (AEC VM) and the Asbestos Landfill (AEC VP) at concentrations in excess of the adopted human health screening values. The sampling locations within AEC VC and AEC VM are both in areas of bare gravel within the operational and are therefore accessible to Site employees. The sampling locations within AEC VP are also in areas of open ground and therefore accessible but are outside of the operational area, in a part of the Site known to be impacted by asbestos and only infrequently visited by Site employees.

All of these areas of asbestos impact may however represent a health risk if Site employees were to come into contact with them. ERM understands that Delta has subsequently recorded these areas in its Asbestos Register, for future management in line with the Delta Asbestos Management Procedures. The absence of asbestos within fill materials or upon surface soils in other areas across the Site also cannot be guaranteed on the basis of the results of this assessment.

## 6.2.2 *Onsite Groundwater*

### *Beneficial Uses*

Groundwater beneath the Site is not extracted for potable use and a search of licensed groundwater bores has not identified any potential groundwater extraction receptors in the immediate vicinity of the Site. The nearest registered groundwater bores to the Site are a domestic bore located approximately 700 m north of the operational area in Mannering Park and a stock watering bore located approximately 600 m north of the Ash Dam. The potential does however exist for unidentified groundwater bores to be present in the residential areas located immediately to the north, west and south of the Ash Dam and to the east of the Rail Coal Unloader Area.

The groundwater beneath the Site is not considered to be an aquatic environment of significance. Based on the topography and available hydrological information, groundwater beneath the operational area of the Site flows towards the outlet/inlet canal and the groundwater beneath the Ash Dam flows both to the north towards Mannering Bay and to the west towards Wyee Creek. The groundwater beneath the Wyee Rail Coal Unloader Area appears to flow to the east towards Lake Macquarie.

The ANZECC (2000) *marine ecological trigger values* were adopted in this assessment to evaluate risks to the marine environment (i.e. the inlet/outlet canal, Lake Macquarie, Wyee Creek and Mannering Bay). These screening levels also fulfil the requirement to report groundwater contamination across the Site, in accordance with the DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (refer to Section 4.10.2).

The NHMRC (2008) recreational screening values were adopted in this assessment to evaluate potential risks to recreational users of Mannering Bay and Lake Macquarie.

The NHMRC (2013) drinking water screening values were also adopted to evaluate potential risks to groundwater users in nearby residential communities. These values also fulfil the requirement to report groundwater contamination across the Site, in accordance with the DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (refer to Section 4.10.2).

#### *Hydrocarbons in Groundwater*

TRH and chlorinated hydrocarbons were reported above the laboratory LOR in groundwater samples collected from monitoring wells installed around the boundary of the former A Station Demolition Area (AEC VB). The measured concentrations did not exceed the adopted screening values but may be indicative of the presence of unidentified impacts within the former A Station area.

It is understood that once the demolition is complete, the A Station basement level concrete will remain and in other areas the ground surface will be covered with recycled crushed concrete and left vacant. On this basis unidentified hydrocarbon impacts within this area are unlikely to represent a risk to human health (i.e. assuming the land is left vacant and fenced).



Due to the presence of underground and overhead services and thick concrete (>0.6 m) on the transformer runways, a number of proposed sampling locations were unable to be installed along the northern boundary of the Former A Station. On this basis, the absence of hydrocarbons along the north western boundary of the former A Station Demolition Area could not be confirmed. Significant hydrocarbon impacts were not however identified in sediment or surface water samples collected from the mouth of the inlet/outlet canal. On this basis, potential unidentified hydrocarbon impacts within the former A Station Demolition Area do not appear to be resulting in significant impacts to the wider estuarine environment.

Benzene was detected at concentrations in excess of the adopted human health (drinking water) screening value in two groundwater sample collected from the Vehicle Refuelling Area (AECs VH). One of the benzene detections exceeded the adopted recreational screening values. The inferred groundwater flow direction in the area of the Vehicle Refuelling Depot is north east below the former A Station Power Block towards the inlet/outlet canal. In the absence of potable groundwater use in this area of the Site, these impacts are not considered to represent a significant potential risk to human health under the ongoing use of the Site as a Power Station. Benzene impacts were also not identified in sediment or surface water samples collected from the mouth of the inlet/outlet canal, indicating that these impacts are not likely to be impacting upon recreational users of Lake Macquarie.

Benzene was also identified in a single monitoring well in two samples collected from downgradient of the Asbestos Landfills (AEC VP) at a concentration marginally in excess of the adopted human health (drinking water) screening value. These detections may be related to the migration of impact associated with the waste materials disposed within the landfill. In the absence of potable groundwater use in this area, these marginal exceedances are not considered representative of a significant potential risk to human health.

#### *PFOS in Groundwater*

Wells located around the boundary of the former A Station Demolition Area (AEC VB) and Chlorine Plant Area (AEC VM) reported PFOS concentrations in excess of the adopted human health (drinking water) screening level but not the adopted ecological screening level. In the absence of potable groundwater use in this area, these exceedances are not considered representative of a significant potential risk to human health.

PFOS was detected in two monitoring wells around the boundary of the former A Station, both of which were located to the south east. PFOS was not detected in the monitoring wells located on the northern and western corners of the Former A Station Area.

As discussed above, a number of proposed sampling locations were unable to be installed along the northern boundary of the Former A Station and therefore the absence of PFOS in these areas cannot be confirmed.

#### *Metals in Groundwater*

Exceedances of the adopted human health (drinking water and recreational) screening levels were reported in groundwater for arsenic, lead, nickel manganese and selenium and exceedances of the adopted ecological screening levels were also reported for cobalt, copper, lead, nickel, selenium and zinc.

Where concentrations of metal(oids) in groundwater were measured above background values, impact generally appears to be localised in distinct areas of the site with the main potential source areas being the Vehicle Refuelling Depot (AEC VH), the Coal Storage Area (AEC VJ) and the Ash Dam (AEC VO). The majority of samples with concentrations reported above the background values were taken from monitoring wells located downgradient of the Ash Dam which appears to be a primary source of arsenic and selenium to groundwater and a secondary source of cobalt, copper, lead, manganese, nickel and zinc.

Potential risks to the marine environment and recreational users of the marine environment that may be associated with these metal impacts in groundwater are discussed in *Section 6.2.3*, with reference to the sediment and surface water data.

Licensed groundwater bores located within the vicinity of the Site are limited to a domestic bore located approximately 700 m north of the Site in Mannering Park and a former stock bore located approximately 1 km south west of the Power Station operational area and 600 m north of the Ash Dam in a Delta-owned wetland area. The inferred groundwater flow direction in the area of the Vehicle Refuelling Depot and Coal Storage Area is north east towards the inlet/outlet canal and Lake Macquarie. In the absence of potable groundwater use in the areas downgradient of the Vehicle Refuelling Area and Coal Storage Area, these elevated metal impacts in groundwater impacts are not considered to represent a significant potential risk to groundwater users.

Licensed groundwater bores are not present in the immediate vicinity of the Ash Dam, but rural residential and residential communities are located immediately to the north, west and south of the Ash Dam. The extraction of groundwater for potable, domestic, stock watering or commercial purposes in these areas may therefore potentially occur in the future. Risk to human health may be associated with the extraction of groundwater for use in the vicinity of the Ash Dam, particularly if that water were used for domestic purposes, although given the general elevated background metal concentrations measured across the Site, the groundwater beneath the adjacent properties is also likely to be generally unsuitable for potable use

It is recommended that this issue is discussed with the NSW EPA and NSW Office of Water, with the aim of implementing control measures to prevent the potable use of groundwater in the vicinity of the Ash Dam.

### 6.2.3 *Offsite Surface Water and Sediment*

Sediment and surface water samples were collected from within Wyee Creek, Mannering Bay, Wyee Bay and Chain Valley Bay to assess whether discharges from the Power Station, including runoff, groundwater discharge and operational surface water discharges have had an adverse effect on the marine environment surrounding the Site.

Exceedances of the adopted sediment screening levels for cadmium and copper were identified in individual samples but the distribution of these impacts is not suggestive of significant cadmium and cobalt impacts in Lake Macquarie sediments as a result of the operation of the Vales Point Power Station. Similarly, copper and cobalt concentrations marginally in excess of the adopted ecological screening levels were identified in a number of surface water samples, but a clear link between these samples and the Site was not apparent in the data. With the exception of selenium, the sediment and surface water results do not suggest that discharges from the Power Station have resulted in widespread significant risks to the marine environment or recreational users of the adjacent waterways, although it is noted that isolated areas of elevated impact may be present in close proximity to discharge points from the Site.

Exceedances of the adopted ecological selenium screening level (2 mg/kg) were identified in numerous sediment samples collected from within the lower reaches of Wyee Creek and within Mannering Bay. The maximum selenium concentration reported in a sediment sample collected from Wyee Creek was 26 mg/kg, with the selenium concentrations measured in sediment samples collected from within Wyee Creek generally increasing along the Creek towards Mannering Bay. Relatively consistent concentrations of selenium were recorded in sediment samples collected from throughout Mannering Bay, at up to 8 mg/kg. It is considered likely that discharges from the Ash Dam, potentially including licensed discharges, runoff and groundwater flow have contributed to these selenium impacts, although other potential sources within the catchment include mines, other power stations and other industries. The selenium concentrations measured in sediments located in Wyee Creek and Mannering Bay are therefore considered to have the potential to adversely impact upon marine organisms in these areas.

The *Delta Coast Land Management Manual* (GHD, 2012) indicates that State Environmental Planning Policy No. 14 (SEPP 14) wetlands are also located immediately to the north of the Ash Dam toe drain and along the creeks to the north of the Ash Dam. On the basis of the data collected in this assessment, these areas may potentially be adversely impacted upon by elevated selenium concentrations.

## 6.3

**SUMMARY – DOES THE IMPACT WARRANT NOTIFICATION UNDER THE CONTAMINATED LAND MANAGEMENT ACT 1997?**

Under Section 60 of the *CLM Act (1997)*, a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify NSW EPA when they become aware (or ought reasonably have been aware) of the contamination. The DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*, state that a landowner or a person whose activities have contaminated land is required to notify NSW EPA that the land is contaminated if;

- the level of the contaminant exceeds the appropriate published screening level with respect to a current or approved use of the land, **and** people have been, or foreseeably will be, exposed to the contaminant; or
- the contamination meets a specific criterion prescribed by the regulations; or
- the contaminant has entered, or will foreseeably enter, neighbouring land, the atmosphere, groundwater or surface water, **and** the contamination exceeds, or will foreseeably exceed, an appropriate published screening value and will foreseeably continue to remain above that level.

The soil and groundwater results obtained in this assessment have been compared against the screening values specified in NSW DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* and a number of exceedances have been identified.

Every exceedance of these screening values is not, however, required to be reported to the NSW EPA. If the exceedance is representative of background conditions; or offsite migration of contamination to an adjoining property has not occurred **and** any onsite contamination has been adequately addressed under the Environmental Planning and Assessment Act then reporting under the CLM Act is not required. Further to this, in the case of onsite soil contamination, if no plausible exposure pathway to people or the environment is present, reporting is also not required.

On the basis of the discussions outlined in *Section 6.1*, the constituents that have been identified in onsite soil, sediment, surface water and groundwater are generally not exceeding the relevant screening values as cited in NSW DECC (2009).

The identified impacts which do exceed the relevant screening values and are considered to warrant further consideration with regards to whether a duty to report may exist under the CLM Act include the following:

- Benzene detected at concentrations in excess of the adopted human health (drinking water and recreational) screening levels in two groundwater samples collected from the Vehicle Refuelling Area (AECs VH) and a single sample collected from downgradient of the Asbestos Landfills (AEC VP).
- PFOS detected at concentrations in excess of the adopted human health (drinking water) screening levels in a groundwater sample collected from around the boundary of the Former A Station Demolition Area (AEC VB) and a groundwater sample collected near the Chlorine Plant (AEC VM).
- Metals in groundwater detected at concentrations in excess of the adopted human health and/or ecological screening levels and not attributable to background conditions in groundwater at various locations across the Site. Metal impacts in groundwater generally appears to be localised in distinct areas of the site with the most likely potential source areas being the Vehicle Refuelling Depot (AEC VH), the Coal Storage Area (AEC VJ) and the Ash Dam (AEC VO).
- Exceedances of the selenium ecological screening level identified in numerous sediment samples collected from within the lower reaches of Wyee Creek and within Mannering Bay.

Each of these issues is discussed in further detail below.

### **6.3.1 Benzene in Groundwater - AEC VH and VP**

Benzene was detected in groundwater at concentrations above the adopted human health (drinking water) screening levels in two wells within the Vehicle Refuelling Area (AEC VH) and a single well installed downgradient of an Asbestos Landfill (AEC VP). It is considered likely that the benzene impacts in AEC VH are associated with the presence of USTs in this area and that the benzene impact in AEC VP is associated with the material buried within the asbestos landfill.

The concentrations of benzene measured in AEC VP were only marginally above the adopted screening level but were confirmed in a second round of sampling (May 2014). Notification to NSW EPA is therefore considered likely to be required.

Groundwater monitoring has been ongoing within AEC VH since 2010, when TRH(C<sub>10</sub> - C<sub>36</sub>) was identified at a concentration of 2540 µg/L, in a well installed to the north of the USTs. Hydrocarbon detections in the current assessment were limited to BTEX constituents and do not suggest the presence of a significant ongoing release in this area of the Site. Notification to NSW EPA is however considered likely to be required, as the detected concentration are significantly greater than the human health (drinking water) screening values and are likely to remain so for the foreseeable future.

It is considered unlikely in ERM's opinion that these impacts would be considered significant enough to warrant regulation by the NSW EPA given the absence of groundwater use onsite and the isolated nature of the detections. The inferred groundwater flow direction in the area of the Vehicle Refuelling Depot is north east below the former A Station Power Block towards the inlet/outlet canal and the Vehicle Refuelling Area is approximately 150 m from the canal.

### 6.3.2 *PFOS in Groundwater*

PFOS and PFOA were detected in groundwater at concentrations in excess of the adopted human health (drinking water) and ecological screening levels within the Former A Station Demolition Area (AEC VB) and Chlorine Plant (AEC VM). The likely sources of these impacts are fire training activities undertaken near the Chlorine Plant and the storage or use of firefighting foams within the operational area.

The adopted human health (drinking water) screening levels were obtained from US EPA (2014), with the adopted values being provisional health advisory concentrations, rather than regulatory guidelines. Similarly, the adopted ecological screening levels were obtained from RIVM (2010), with the adopted values only having been proposed as water quality standards in the Netherlands. As such, these values are not called up by section 60 of the CLM (1997) Act as prescribed levels of contamination requiring notification. It is also noted that the identified PFOS impacts are located within the operational area and do not appear to be migrating offsite. On this basis it is considered unlikely in ERM's opinion that these impacts would be considered significant enough to warrant regulation by the NSW EPA

### 6.3.3 *Metals in Groundwater*

Various metals were detected at concentrations above the human health (drinking water) and / or ecological screening values at a number of locations across the Site. Whilst some of the metals exceedances can be related to background concentrations, some elevated concentrations related to on-site sources have been identified.

The creation of ASS through the disturbance of alluvial sediments underlying the ash dam, historical and current underground coal mining works and the long term storage of waste ash materials and coal may have contributed to the observed metal impacts in groundwater in this area.

Where metals were identified in groundwater at concentrations above background levels, impact generally appears to be localised in distinct areas of the Site. Potential source areas appear to include the Coal Storage Area and the Ash Dam. Acidic groundwater conditions in the vicinity of the Vehicle Refuelling Area also appear to have contributed to the presence of elevated metal concentrations in groundwater.

With the exception of selenium discharges from the Ash Dam, the available data suggests that these impacts have not resulted in significant sediment or surface water contamination following discharge into the estuarine environment (see *Section 6.1.3*).

In ERM's professional experience it is NSW EPA's preference to regulate issues such as these under either the *POEO Act (1997)* or the *CLM Act (1997)* rather than both, and, in the case of licensed premises, it is usually the *POEO Act (1997)* which is preferred.

The majority of samples with concentrations reported above the background values were collected from monitoring wells located adjacent to the Ash Dam which appears to be a potential source of arsenic, selenium, and to a lesser extent cobalt, copper, lead, manganese, nickel and zinc. Seepage from the Ash Dam rehabilitated area at the v-notch weir located at the toe of the Ash Dam is currently regulated under the Site EPL. Similarly, the overboarding of the Ash Dam into the Wye Creek diversion channel is a licensed discharge point for the Site. Groundwater monitoring down-gradient of the Ash Dam has been undertaken by Aurecon (2014) in response to a NSW EPA request for an additional investigation in the form of a Pollution Reduction Programme (PRP) related to the elevated metal concentrations identified in groundwater.

ERM therefore considers that NSW EPA would most likely continue to manage this issue under the *POEO Act (1997)* via the Site EPL and associated PRP(s) and hence would not require formal notification under the CLM Act.

On 6 May 2014, Delta received a Vales Point Licence Variation Notice from the NSW EPA. The previous condition requirements to (a) identify any mitigation measures to be carried out to reduce the levels of parameters identified in groundwater and (b) provide estimated costings and proposed timeframes for implementation of mitigation measures, were removed as a part of this variation notice. This variation notice also included the requirement for monthly groundwater monitoring in the vicinity of the Ash Dam throughout 2014. It is recommended that Delta include groundwater results from within the Ash Dam Area (AEC VO) in the next scheduled report to the NSW EPA.

It is suggested that the NSW EPA should manage ongoing communications around the potable use of potentially impacted groundwater in the vicinity of the Ash Dam and downgradient areas, given the range of potential sources of metals in groundwater in this area and potential for the wider distribution of metals in groundwater.

#### 6.3.4 *Selenium in Sediment*

Selenium concentrations above the adopted screening levels and above background levels were identified in numerous sediment samples collected from within the lower reaches of Wyee Creek and within Mannering Bay. It is considered likely that discharges from the Ash Dam, potentially including licensed discharges, runoff and groundwater flow have contributed to these impacts. Other potential sources within the catchment include mines, other power stations and other industries.

It is noted that the sediment concentrations measured in the current investigation were of the same order of magnitude as those identified in historic investigations (e.g. Peters et al., 1999), suggesting that the selenium load in Wyee Creek and Mannering Bay sediments have not increased significantly in recent years. This is consistent with the history of the operation of the Ash Dam; prior to 1981 Vales Point discharged ash dam water direct to Mannering Bay and until 1996 ash dam water was diverted into Wyee Creek. From 1996, an ash return water system limited discharges into Wyee Creek and Mannering Bay, with discharges only occurring intermittently due to plant issues or significant rainfall events.

Delta has had a long history of consultation with the EPA and other authorities about selenium in local water bodies. Roach (2005) is a scientific paper published by the NSW EPA on the assessment of metals in sediments from Lake Macquarie and has a particular focus on the selenium impacts to sediment as a result of discharges from Power Stations. Aurecon (2010) indicated that data on the earlier testing of fish was provided by Delta and indicated that the selenium concentrations measured in bream were above the Generally Expected Levels (GELs) published by Food Standards Australian and New Zealand (2001). ERM understands that as a consequence of these results and subsequent communications between Delta and the NSW EPA (1998), warning signs were erected at Mannering and Wyee Bays in relation to long-term fish consumption for those areas.

The adopted sediment screening levels were obtained from the British Columbia Ministry of Environment (2001) Ambient Water Quality Guidelines. These values are not called up by section 60 of the CLM (1997) Act as prescribed levels of contamination requiring notification.



It is noted that the levels of selenium in the sediment are lower than the levels prescribed in the ASC NEPM (2013) for the assessment of residential soil (200 mg/kg) and therefore would not trigger notification if the offsite sediment was evaluated as 'soil on neighbouring land' for the purposes of assessing the duty to report requirements under the CLM Act (1997).

On the basis of the above factors, it is considered that the selenium impacts in sediment in Wyee Creek and Mannering Bay do not require notification to the NSW EPA under the CLM Act (1997).

### 6.3.5

#### *Summary – Is Material Remediation or Management Likely to be Required?*

Based on the results of this assessment, the issues where potentially material remediation, management or further assessment on a per source basis may be required relate to the metals in groundwater in the vicinity of the Ash Dam. The elevated metal concentrations in the vicinity of the Ash Dam toe drain have also already been identified by the NSW EPA in the form of a PRP and investigations into this issue in the vicinity of the Ash Dam toe drain were ongoing at the time of the current assessment.

Elevated metal concentrations were identified in groundwater samples collected around the entire perimeter of the Ash Dam, with the highest concentrations generally located in the vicinity of the toe drain, along the north western boundary of the Ash Dam and directly to the east of the Ash Dam. With the exception of selenium, the sediment and surface water results do not suggest that discharges from the Power Station have resulted in widespread significant risks to the marine environment or recreational users of the adjacent waterways.

The metal impacts in the vicinity of the Ash Dam are currently managed by Delta. This is an ongoing issue which could, under a realistic worst case scenario, be material. Estimates for ongoing costs have not been made, as these costs will be dependent on outcome of the relevant PRP and ongoing discussions with NSW EPA. It is also noted that elevated background metal concentrations are present in the area and the potential exists for inputs from historic mining activities to be material.

Further assessment and remediation or management may be required to address the asbestos impacts identified in surface soil in the vicinity of the Transformer Area (AEC VC) and Chlorine Plant (AEC VM). It is however considered unlikely that this work would exceed the material threshold.

It is noted that conducting intrusive investigations within the B Station, Transformer Area and Former A Station demolition Area was not possible, due to the potential health and safety issues associated with the presence of underground services in these areas.

The investigation of these AECs was therefore limited to assessment around the boundaries. Further assessment and remediation may be required to address unidentified soil and groundwater impacts within these areas if the landuse of these portions of the Site was to change in the future. It is possible that costs related to this work could exceed the material threshold. A detailed costing for such works has not been prepared since this would be dependent on the nature and layout of the proposed use which cannot be predicted at this point in time.

Fly-tipped waste was identified on the soil surface on the eastern boundary of the Wyee Rail Coal Unloader Area (AEC VN) adjacent to the publically accessible roadway. These impacts will require addressing and action to prevent further waste dumping in the future should also be considered. The costs of these activities are not however anticipated to be material.

The remediation of the selenium impacts in Wyee Creek or Mannering Bay sediments is not considered to be feasible, given the nature of the estuarine environment in these areas; removing impacted sediment from would be highly disruptive to the estuarine environment and is considered likely to result in more adverse effects on the estuarine ecology than leaving the impacts in situ. This is particularly the case due to the presence of seagrass habitats and mangrove areas within Wyee Bay, Mannering Bay and Wyee Creek (Bio-analysis, 2013) (GHD, 2012).

#### 6.4

##### ***SUMMARY – IS THE DATA SUITABLE TO PROVIDE A BASELINE OF ENVIRONMENTAL CONDITIONS AT THE SITE AND IMMEDIATE SURROUNDING RECEIVING ENVIRONMENTS***

The data presented in the ESA was considered to generally be of a suitable quality and completeness to provide a baseline of environmental conditions at the Site as at or near the time of the transaction.

It is noted that the majority of the locations proposed in the Preliminary ESA were able to be advanced, with the exception of the locations listed in *Section 4.1*. The main constraints on the implementation of the Stage 2 program were the presence of subsurface and overhead utilities and access restrictions within the buffer zone. The proposed Stage 2 program included soil samples from 188 locations and groundwater samples from 133 locations. The completed Stage 2 program included soil samples from 173 locations and groundwater samples from 89 locations. An evaluation of the proposed and completed investigation locations for each AEC is provided in *Table 8 of Annex B* and on this basis it is considered that the number and distribution of completed boreholes and monitoring wells is sufficient for characterising soil and groundwater conditions for the purpose of this baseline assessment.

The results of the assessment do not suggest the presence of widespread asbestos contamination at the Site. It is noted however that as identified in the ASC NEPM (2013) the vertical boring of soils is not a comprehensive method via which to identify asbestos, however given the objectives of this assessment and the operational constraints, the assessment methodology adopted was considered appropriate. The absence of asbestos impacts across the Site cannot however be guaranteed on the basis of the results of this assessment. As with any investigation of this nature, the potential exists for unidentified contamination to exist between the completed sampling locations both within and between AECs. In particular, it is noted that conducting intrusive investigations within the B Station, Transformer Area and Former A Station demolition Area was not possible, due to the health and safety issues associated with the presence of underground services in these areas. The investigation of these AECs was therefore limited to assessment around the boundaries and unidentified soil and groundwater impacts may be present within these areas.

In addition, the installation of boreholes along an approximately 2 km long stretch of the south western boundary of the Ash Dam was not possible, due to the presence of a Jemena high pressure gas pipeline in the subsurface. In the absence of additional contaminant source areas in this area of the AEC, contamination along the south western boundary is likely to be consistent with that identified along other boundaries of the Ash Dam (i.e. limited to exceedances of the adopted human health and ecological screening levels for metals in groundwater and potentially soil).

On the basis of the above discussion, the data collected during this assessment is considered to be suitable to provide a baseline of environmental conditions at the Site as at or near the time of the transaction.

**CONCLUSIONS**

ERM completed a Stage 2 ESA at Vales Point Power Station in order to develop a baseline assessment of environmental conditions at the Site as at or near the time of the transaction. Soil, groundwater, surface water and sediment data were compared against published environmental quality levels to provide a screening level assessment of potential risks to identified human and environmental receptors. The following conclusions were made based on the data collected during the investigation:

- The key impacts identified included benzene in groundwater in the Vehicle Refuelling Area and downgradient of the Asbestos Landfills, PFOS (a chemical associated with firefighting foams) in groundwater around the boundary of the former A Station Demolition Area and the Chlorine Plant and TRH, benzo(a)pyrene, asbestos and metals in individual soil samples across the Site.
- Selenium concentrations above adopted screening values were also identified in sediment samples collected from within Wyee Creek and Mannering Lake. It is considered likely that discharges from the Ash Dam, potentially including licensed discharges, runoff and groundwater flow have partially contributed to these impacts. Other potential sources within the catchment include mines, other power stations and other industries. The selenium concentrations identified in the current assessment were of the same order of magnitude as those identified in historic investigations suggesting that, as a result of changes to the management of discharges from the Ash Dam, the selenium load in Wyee Creek and Mannering Bay sediments has not increased significantly in recent years.
- TRH and chlorinated hydrocarbons were reported in groundwater samples collected around the boundary of former A Station Demolition Area. The former A Station area could not be investigated directly due to ongoing demolition work and thus a potential data gap exists in this area).
- Various metals were identified at concentrations in excess of the adopted screening values across the Site. Where metals were identified above background concentrations, impact generally appears to be localised in distinct areas of the Site. Potential source areas appear to include the Ash Dam and Coal Storage Area, where the creation of ASS conditions through the disturbance of alluvial sediments, historical and current underground coal mining works and/or the long term storage of waste ash materials and coal may have contributed to the observed metal impacts in groundwater. Acidic groundwater conditions in the vicinity of the Vehicle Refuelling Area also appear to have contributed to the presence of elevated metal concentrations in groundwater in that part of the Site.

- Fly-tipped waste was identified on the soil surface on the eastern boundary of the Wyee Rail Coal Unloader Area along the publically accessible roadway.
- With the exception of the selenium impacts identified in sediment (see below), the impacts identified in soil and groundwater at the sites are generally unlikely to represent a significant risk to human health and/or the environment given appropriate ongoing management based on the current and continued use of the Site as a Power Station.
- The selenium concentrations measured in Wyee Creek and Mannering Bay have the potential to adversely affect marine organisms in these areas. ERM understands that elevated selenium concentrations have previously been measured in fish collected from Mannering Bay and that the NSW EPA has previously been made aware of these impacts. Signage has been posted along Rutleys Road warning the public about the potential health risks associated with the consumption of fish from this area.
- Licensed groundwater bores are not present in the immediate vicinity of the Ash Dam, but rural residential and residential communities are located immediately to the north, west and south. If the extraction of groundwater for potable, domestic, stock watering or commercial purposes was to occur in these areas in the future, the elevated metal concentrations in groundwater may be associated with risks to human health or livestock. It is recommended that this issue is raised with the NSW EPA when discussing the next scheduled deliverable associated with PRP being implemented in the Ash Dam area. It is suggested that the NSW EPA should manage ongoing communications on this issue, given the range of potential sources of metals in groundwater in this area.
- Asbestos was detected in individual shallow soil samples collected from bare ground within the Transformer Area, Chlorine Plant and around the boundaries of the Asbestos Landfill at concentrations in excess of the adopted human health screening values. All of these areas of asbestos impact may represent a health risk if Site employees were to come into contact with them. ERM understands that Delta has recorded these sites in its Asbestos Register and that these impacts shall be managed in accordance with Delta's existing asbestos management procedures.
- The metal impacts in the vicinity of the Ash Dam are currently managed by Delta. This is an ongoing issue which could, under a worst case scenario, be material. Estimates for ongoing costs have not been made, as these costs will be dependent on outcome of the relevant PRP and ongoing discussions with NSW EPA. It is also noted that elevated background metal concentrations are present in the area and the potential exists for inputs from historic mining activities to be material.

- It is noted that conducting intrusive investigations within the B Station, Transformer Area and Former A Station demolition Area was not possible, due to the potential health and safety issues associated with the presence of underground services in this areas. Further potentially material assessment and remediation may be required to address unidentified soil and groundwater impacts within these areas if the landuse of the Site was to change in the future.
- ERM considers that NSW EPA would most likely continue to manage the metals in groundwater in the vicinity of the Ash Dam under the POEO Act (1997) via the Site EPL. The Vales Point EPL includes the requirement for monthly groundwater monitoring in the vicinity of the Ash Dam throughout 2014. It is recommended that Delta include groundwater results from within the Ash Dam Area (AEC VO) in the next scheduled report to the NSW EPA.
- It is recommended that the NSW EPA is notified regarding the benzene concentrations measured in excess of the adopted human health (drinking water) screening levels in the Vehicle Refuelling Area (AEC VH) and Asbestos Landfills (AEC VP). On the basis that the identified benzene impacts do not appear to be migrating offsite, it is considered unlikely in ERM's opinion that these impacts would be considered significant enough to warrant regulation by the NSW EPA.
- The data presented in this Stage 2 ESA was generally considered to be of a suitable quality and completeness to provide a baseline of environmental conditions at the Site and immediate surrounding receiving environments.

## REFERENCES

**ANZECC/ARMCANZ. 2000.** *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* 2000. ISBN 09578245 0 5.

**ASC NEPC. 2013.** *National Environment Protection (Assessment of Site Contamination) Measure 1999.* Canberra : s.n., 2013.

**Aurecon. 2010.** *Wyee Dam Overflow Water Quality and Trace Element Assessment of Effects on Receiving Waters.* 2010.

**Aurecon. 2014.** *Letter Re: Groundwater Investigation - Vales Point Power Station Ash Dam .* 2014.

–. **2014.** *Report of Vales Point Ash Dam PRP Stage 1 Investigation.* 2014.

**Australian Standard. 1999.** *Guide to sampling and investigation of potentially contaminated soil Part 2: Volatile substances.* s.l. : Standards Australia, 1999. AS 4482.2 - 1999.

–. **2005.** *Guide to the investigation and sampling of sites with potentially contaminated soil - Part 1: Non-volatile and semi-volatile compounds.* Second edition. Sydney : Standards Australia, 2005. AS 4482.1-2005.

**Bio-analysis. 2013.** *Assessment of Seagrass and Macroalgae from Vales Point Power Station (Summer 2013).* 2013.

**British Columbia Ministry for Environment. 2001.** *Ambient Water Quality Guidelines .* 2001.

**Centennial Coal. 2009.** *Environmental Assessment for the Mannering Colliery Extension of Mine Project.* 2009.

**CRC CARE. 2011.** *Technical Report No. 10, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater.* 2011.

**David Lane and Associates. 2010.** *Groundwater Monitoring Well Report, Vales Point Power Station, Vales Road, Mannering Park NSW 2259.* 2010.

–. **2013.** *Groundwater Monitoring Well Report, Vales Point Power Station, Vales Road, Mannering Park.* 2013.

**DEC. 2006.** *Guidelines for the NSW Site Auditor Scheme.* 2nd Edition. s.l. : Department of Environment and Conservation NSW, 2006. ISBN: 1 74137 859 1.

**Delta Electricity. 2014.** Vales Point Power Station Monitoring Data. [Online] 2014. <http://www.de.com.au/Environment/Environmental-Licences---Monitoring/Vales-Point-Power-Station-Monitoring-Data/default.aspx?retain=true&pg=3>.

**DEWHA. 2009.** *National Assessment Guidelines for Dredging*. Canberra : Commonwealth of Australia, 2009.

**DLA Environmental . 2012.** *Groundwater monitoring well installation report*. 2012.

–. **2013.** *Underground Petroleum Storage System (UPSS) monitoring works*. 2013.

**DLA Environmental. 2012.** *Groundwater Monitoring Well Report, Vales Point Power Station, Vales Road, Mannering Park*. 2012.

**EPA. 1997.** *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*. s.l. : Office of Environment and Heritage, Sydney, 1997. ISBN: 0 7310 3892 4.

**ERM. 2014.** *Preliminary Environmental Site Assessment*. 2014. 0207423RP01.

–. **2012.** *Standard Operating Procedure Manual*. 2012.

**Friebel, E & Nadebaum, P. 2011.** *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, Summary, CRC CARE Technical Report No. 10*. Adelaide, Australia : CRC for Contamination Assessment and Remediation of the Environment, 2011. ISBN: 978 1 921431 15 9.

**Geological Survey of New South Wales. 2003.** *Gosford – Lake Macquarie 1:100 000 Provisional Geology Sheet*. 2003.

**Geoscience Australia.** Australian Stratigraphic Units Database. [Online] <http://www.ga.gov.au/products-services/data-applications/reference-databases/stratigraphic-units.html>.

**GHD. 2012.** *Contamination Assessment & Duty to Report Contamination Central Coast Region - Vales Point Power Station, Munmorah Power Station And Colongra Gas Turbine*. 2012.

–. **2012.** *Delta Coast Land Management Manual*. 2012.

**Delta Electricity. 1998.** Letter Re: Placement of signs adjacent to Rutley's Road near Vales Point. 25 May 1998.

**MDH. 2011.** *Human Health Based Water Guidance Table*. s.l. : Minnesota Department of Health, 2011.



**NEPC. 2013.** *National Environment Protection (Assessment of Site Contamination) Measure 1999.* Canberra : s.n., 2013.

**NHMRC and NRMCC. 2013.** *Australian Drinking Water Guidelines. Paper 6 National Water Quality Management Strategy.* s.l. : National Health and Medical Research Council, National Resource Management Medical Council, Canberra, 2013. ISBN online: 1864965118.

–. **2008.** *Guidelines for Managing Risks in Recreational Waters.* s.l. : National Health and Medical Research Council, 2008. ISBN Inline: 1864962720.

**NSW Government.** NSW Natural Resource Atlas website. [Online] [Cited: 13 January 2014.] <http://www.nratlas.nsw.gov.au>.

**NSW EPA. 1995.** *Contaminated Sites: Sampling Design Guidelines.* Chatswood, NSW : Environment Protection Authority, 1995. ISBN 0731037561.

**NSW Government.** NSW Natural Resource Atlas online bore register. [Online] [Cited: 17 April 2013.] <http://www.nratlas.nsw.gov.au/wmc/custom/homepage/home.html>.

**RIVM . 2010.** *Environmental risk limits for PFOS; A proposal for water quality standards in accordance with the Water.* 2010.

**RIVM. 2001.** *Ecotoxicological serious risk concentrations for soil, sediment and (ground)water; updated proposals for first series of compounds.* 2001.

**Roach, AC. 2005.** *Assessment of metals in sediment from Lake Macquarie, NSW, Australia, using normalisation models and sediment quality guidelines.* Marine Environmental Research, Vol. 59, pp. 453-472.

**Standards Association of Australia. 1993.** *Geotechnical Site Investigations.* 3rd Edition. Homebush : Standards Australia, 1993. ISBN 978 0 7262 7878 5.

**UK HPA. 2009.** *HPA Compendium of Chemical Hazards - PFOS and PFOA.* s.l. : United Kingdom Health Protection Agency, 2009. Version 1.

**US EPA . 2006.** *Guidance on Systemic Planning Using the Data Quality Objectives Process.* 2006.

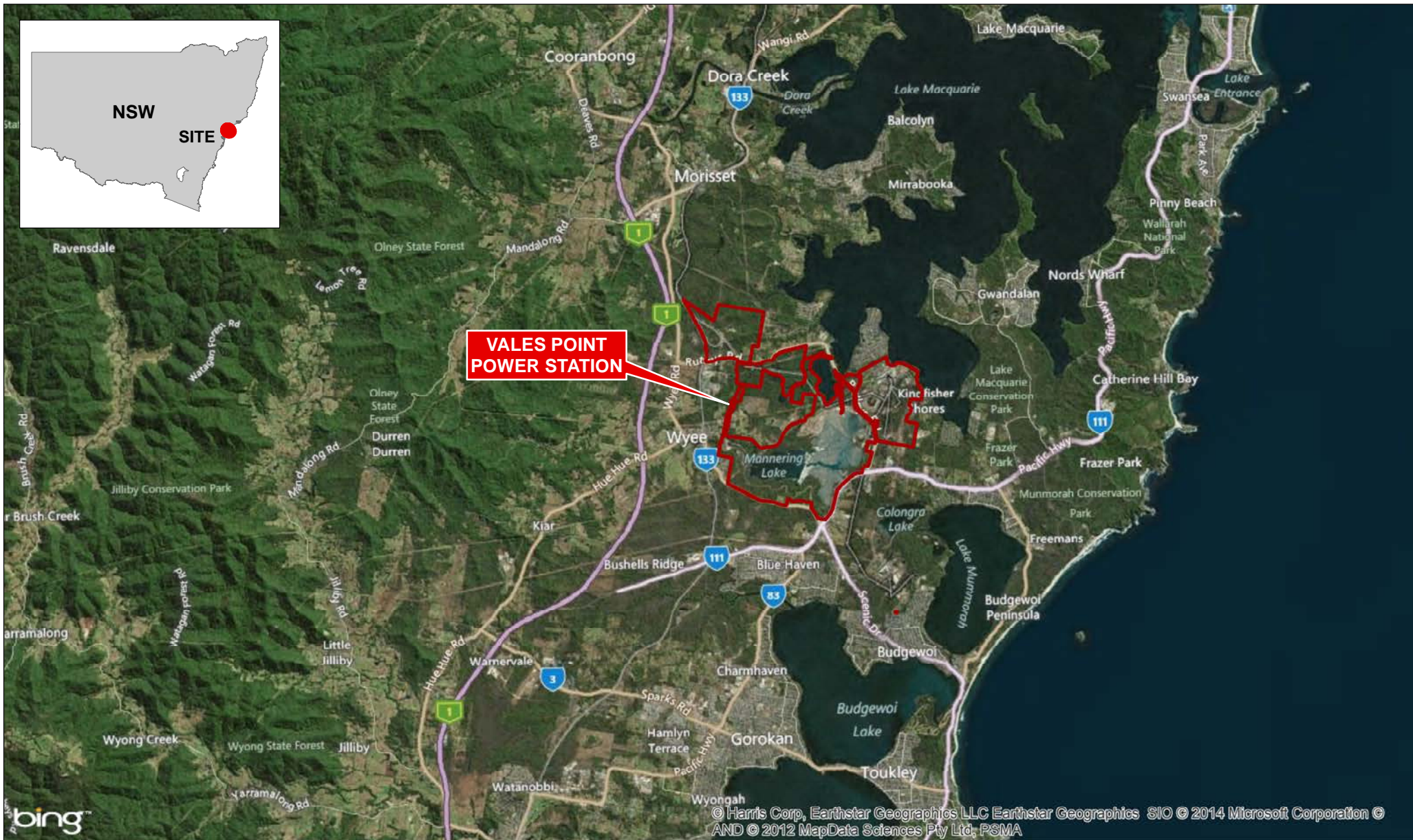
–. **2009.** *The toxicity of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS).* 2009.

**US EPA. 2014.** *Emerging Contaminants – Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA).* 2014.

**WA DOH. 2009.** *Guidelines for the assessment, remediation and management of asbestos-contaminated sites in Western Australia.* Perth : Western Australia Department of Health, 2009.

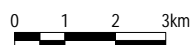
Annex A

Figures



**VALES POINT  
POWER STATION**

Legend  
 Site Boundary



Client:	Delta Electricity
Drawing No:	0237747s_S2ESA_G001_R0.mxd
Date:	09/04/2014
Drawn By:	GC

Drawing Size: A4  
 Reviewed By: KD

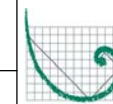
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

**Figure 1 - Site Locality**

Project Symphony - Vales Point  
 Stage 2 Environmental Site Assessment

Environmental Resources Management ANZ

Auckland, Brisbane, Canberra, Christchurch,  
 Melbourne, Newcastle, Perth, Port Macquarie, Sydney



**ERM**

© Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO © 2014 Microsoft Corporation © AND © 2012 MapData Sciences Pty Ltd, PSMA

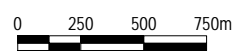




bing

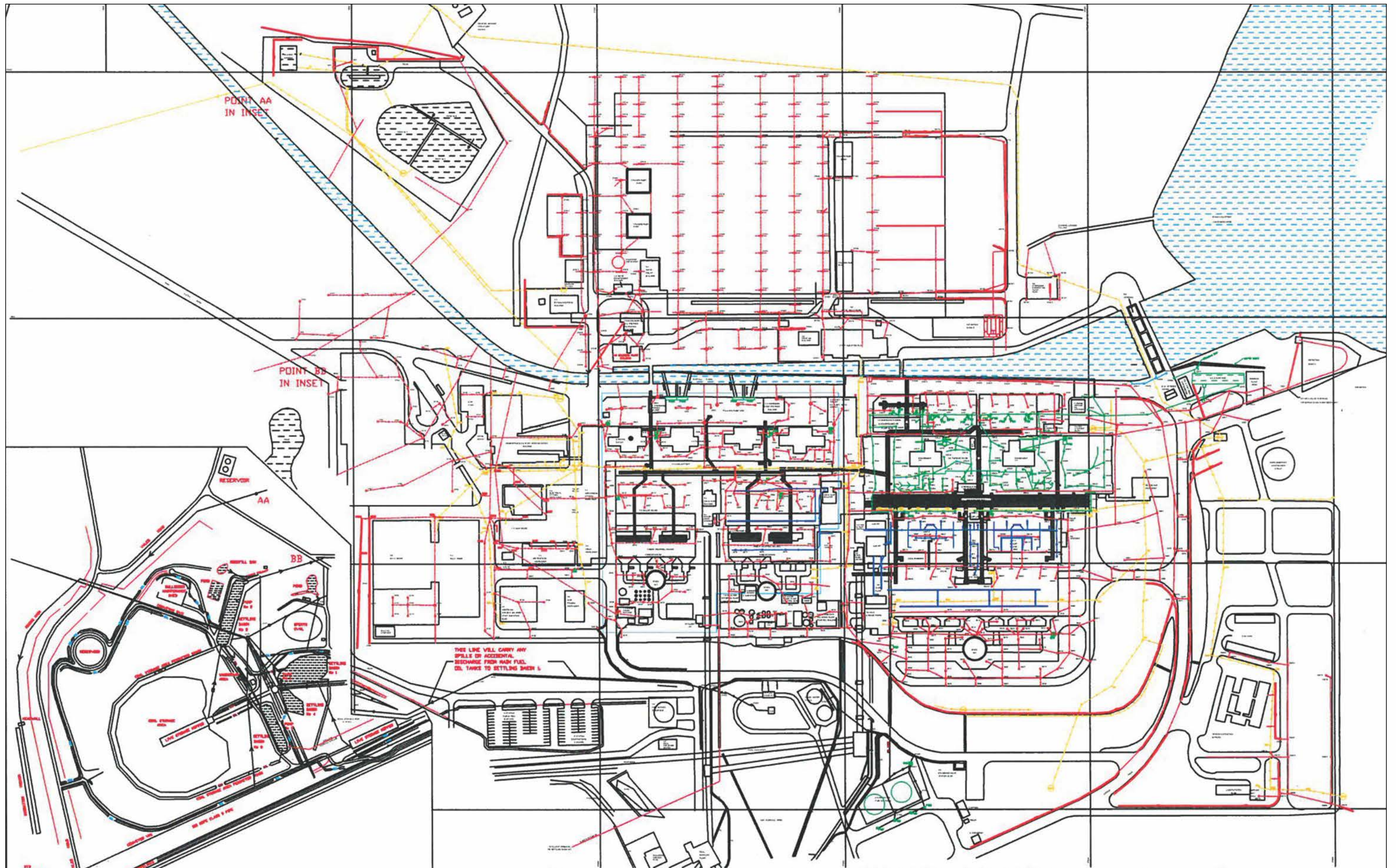
© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

- Legend**
- Site Boundary
  - Excluded Areas (Mine Leases)
  - Included Areas (External Operator):
  - Fly Ash Plant
  - Rail and Mandalong Coal Unloader Area



Client: Delta Electricity	<b>Figure 2 - Site Boundaries</b>	
Drawing No: 0237747s_S2ESA_G002_R0.mxd	Project Symphony - Vales Point	
Date: 02/05/2014 Drawing Size: A3	Stage 2 Environmental Site Assessment	
Drawn By: GC Reviewed By: KD	Environmental Resources Management ANZ	
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney





Source:  
Delta Electricity,  
Drawing No. VP732546-04.

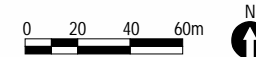
Client: Delta Electricity  
Drawing No: 0237747s\_S2ESA\_C001\_R0.cdr  
Date: 09/04/2014 Drawing size: A3  
Drawn by: GC Reviewed by: KD

**Figure 3 - Layout of the Site Operational Area**

Project Symphony - Vales Point  
Stage 2 Environmental Site Assessment  
Environmental Resources Management ANZ

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney



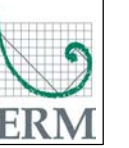
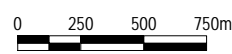




- Legend**
- Site Boundary
  - Excluded Areas (Mine Leases)
  - Topographic Contour
  - Groundwater Bores (as Sensitive Receptors):
  - + GW011915 (Stock/Poultry - 5.4m)
  - + GW201979 (Monitoring Bore, 7m, SWL 6m)
  - + GW201977 (Monitoring Bore 7m, SWL 6m)
  - + GW201978 (Monitoring Bore, 7m, SWL 6m)
  - + GW080830 (Test Bore)
  - + GW034560 (Domestic - 18m)

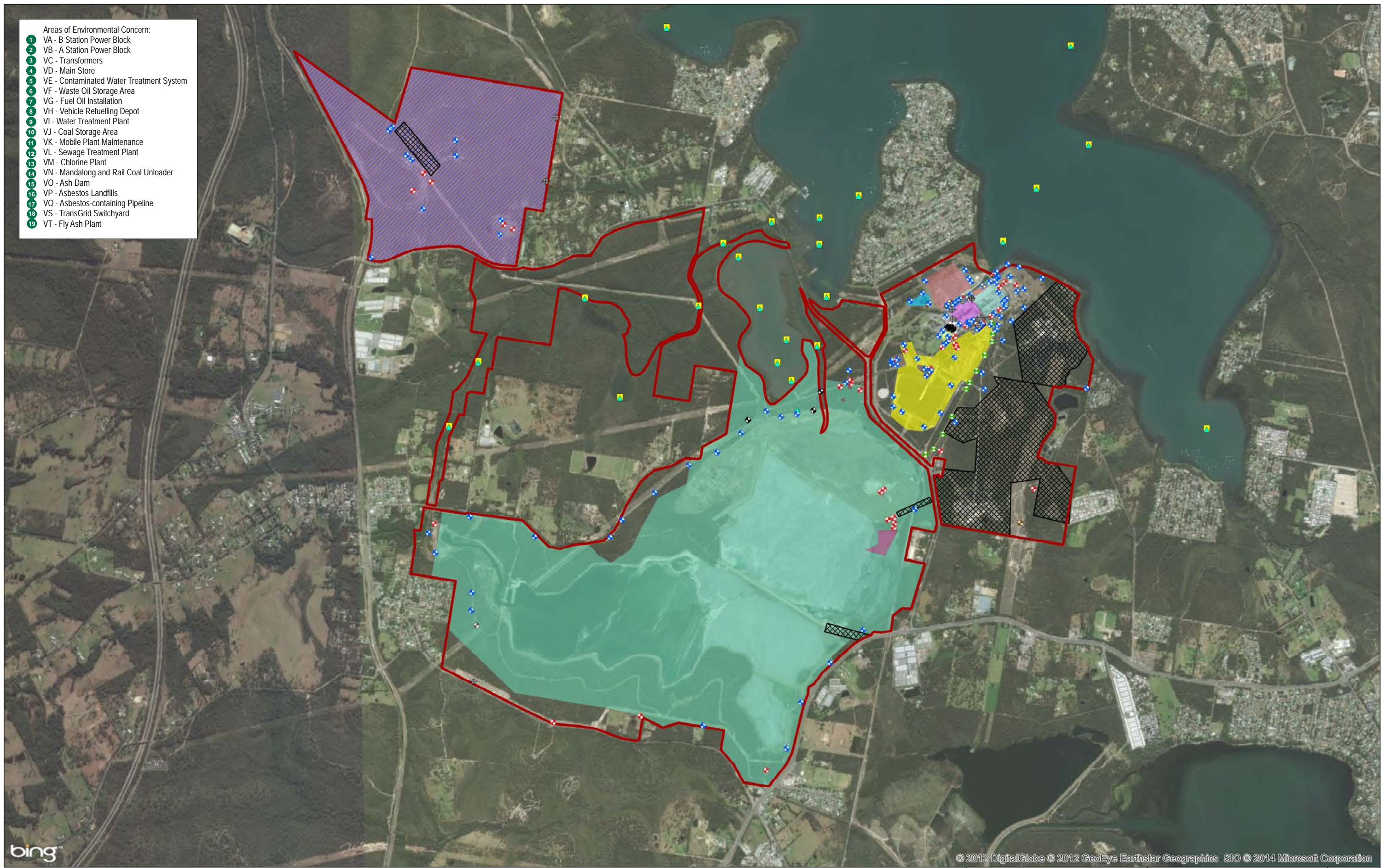
© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

<p>Client: Delta Electricity</p> <p>Drawing No: 0237747s_S2ESA_G003_R0.mxd</p> <p>Date: 02/05/2014 Drawing Size: A3</p> <p>Drawn By: GC Reviewed By: KD</p> <p><small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small></p>	<p><b>Figure 4 - Topographic Contours</b></p> <p>Project Symphony - Vales Point</p> <p>Stage 2 Environmental Site Assessment</p> <p>Environmental Resources Management ANZ</p> <p>Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney</p>
---	---





- Areas of Environmental Concern:
- 1 VA - B Station Power Block
  - 2 VB - A Station Power Block
  - 3 VC - Transformers
  - 4 VD - Main Store
  - 5 VE - Contaminated Water Treatment System
  - 6 VF - Waste Oil Storage Area
  - 7 VG - Fuel Oil Installation
  - 8 VH - Vehicle Refuelling Depot
  - 9 VI - Water Treatment Plant
  - 10 VJ - Coal Storage Area
  - 11 VK - Mobile Plant Maintenance
  - 12 VL - Sewage Treatment Plant
  - 13 VM - Chlorine Plant
  - 14 VN - Mandalong and Rail Coal Unloader
  - 15 VO - Ash Dam
  - 16 VP - Asbestos Landfills
  - 17 VQ - Asbestos-containing Pipeline
  - 18 VS - TransGrid Switchyard
  - 19 VT - Fly Ash Plant

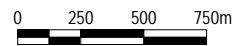


bing

© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

Legend

- |                                       |                           |                      |                            |  |                                       |                                   |
|---------------------------------------|---------------------------|----------------------|----------------------------|--|---------------------------------------|-----------------------------------|
| Site Boundary                         | Abandoned Monitoring Well | Soil Bore            | <b>AECs:</b>               | VE - Contaminated Water Treatment System | VJ - Coal Storage Area                | VO - Ash Dam                      |
| Fly Ash Plant                         | Existing Monitoring Well  | Surface Soil Sample  | VA - B Station Power Block | VF - Waste Oil Storage Area              | VK - Mobile Plant Maintenance         | VP - Asbestos Landfills           |
| Rail and Mandalong Coal Unloader Area | Monitoring Well           | Surface Water Sample | VB - A Station Power Block | VG - Fuel Oil Installation               | VL - Sewage Treatment Plant           | VQ - Asbestos-containing Pipeline |
| Excluded Areas (Mine Leases)          | Abandoned Soil Bore       | Sediment Sample      | VC - Transformers          | VH - Vehicle Refuelling Depot            | VM - Chlorine Plant                   | VS - TransGrid Switchyard         |
|                                       | Shallow Soil Bore         |                      | VD - Main Store            | VI - Water Treatment Plant               | VN - Mandalong and Rail Coal Unloader | VT - Fly Ash Plant                |



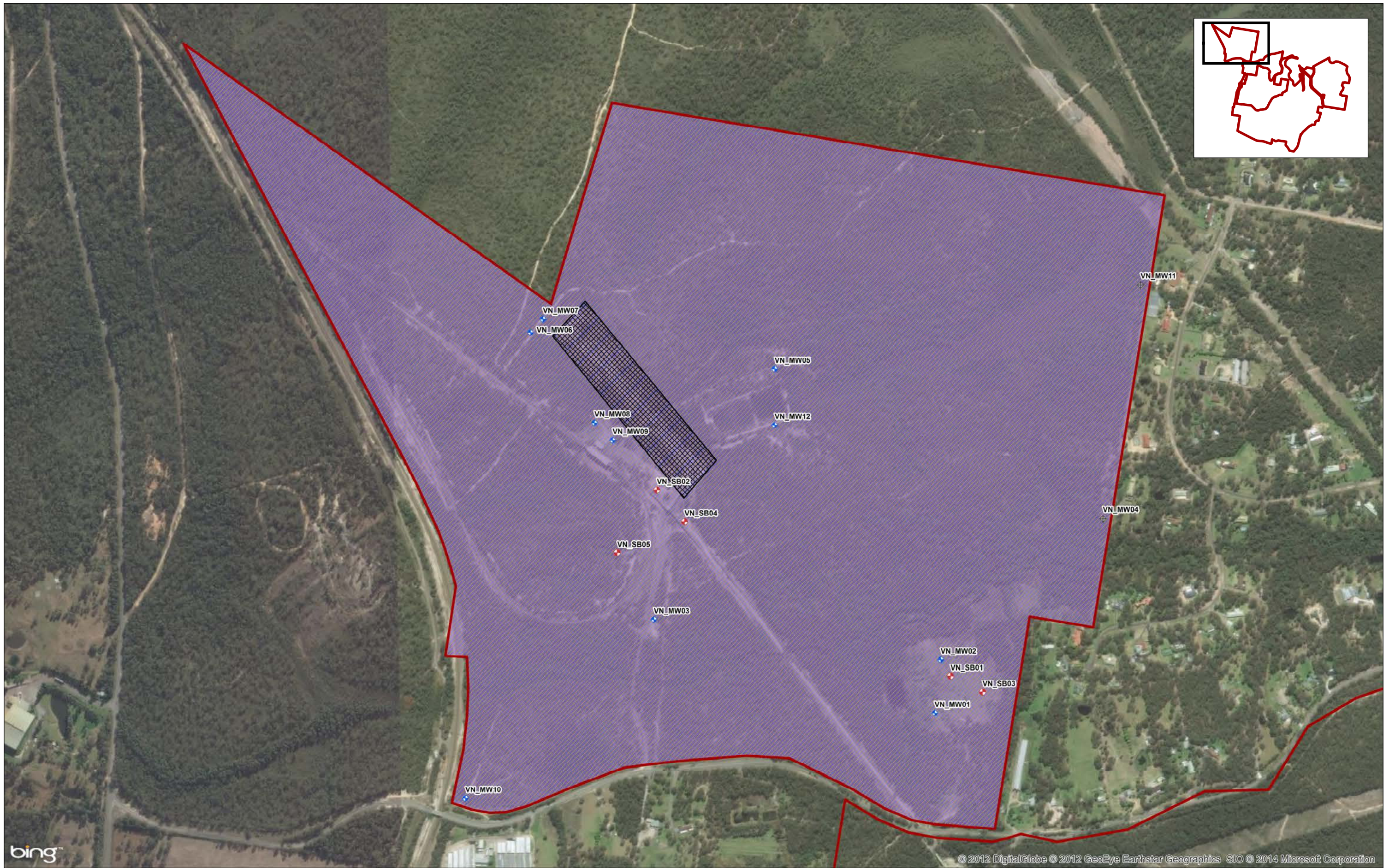
Client:	Delta Electricity
Drawing No:	0237747s_S2ESA_G004_R0.mxd
Date:	13/06/2014
Drawn By:	GC
Reviewed By:	KD

**Figure 5 - Areas of Environmental Concern**

Project Symphony - Vales Point  
 Stage 2 Environmental Site Assessment  
 Environmental Resources Management ANZ  
 Auckland, Brisbane, Canberra, Christchurch,  
 Melbourne, Newcastle, Perth, Port Macquarie, Sydney





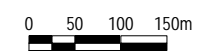


bing™

© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

**Legend**

- Site Boundary
- Rail and Mandalong Coal Unloader Area
- Excluded Areas (Mine Leases)
- Abandoned Monitoring Well
- + Monitoring Well
- + Soil Bore
- AECs:**
- VN - Mandalong and Rail Coal Unloader

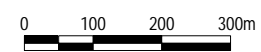


Client: Delta Electricity	<b>Figure 6.1 - Completed Sampling Locations</b>	
Drawing No: 0237747s_S2ESA_G005_R0.mxd	Project Symphony - Vales Point	
Date: 15/04/2014	Drawing Size: A3	Stage 2 Environmental Site Assessment
Drawn By: GC	Reviewed By: KD	Environmental Resources Management ANZ
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney



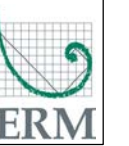


Legend	
Site Boundary	Soil Bore
Existing Monitoring Well	Surface Water Sample
Monitoring Well	Sediment Sample
AECs:	
VO - Ash Dam	VP - Asbestos Landfills

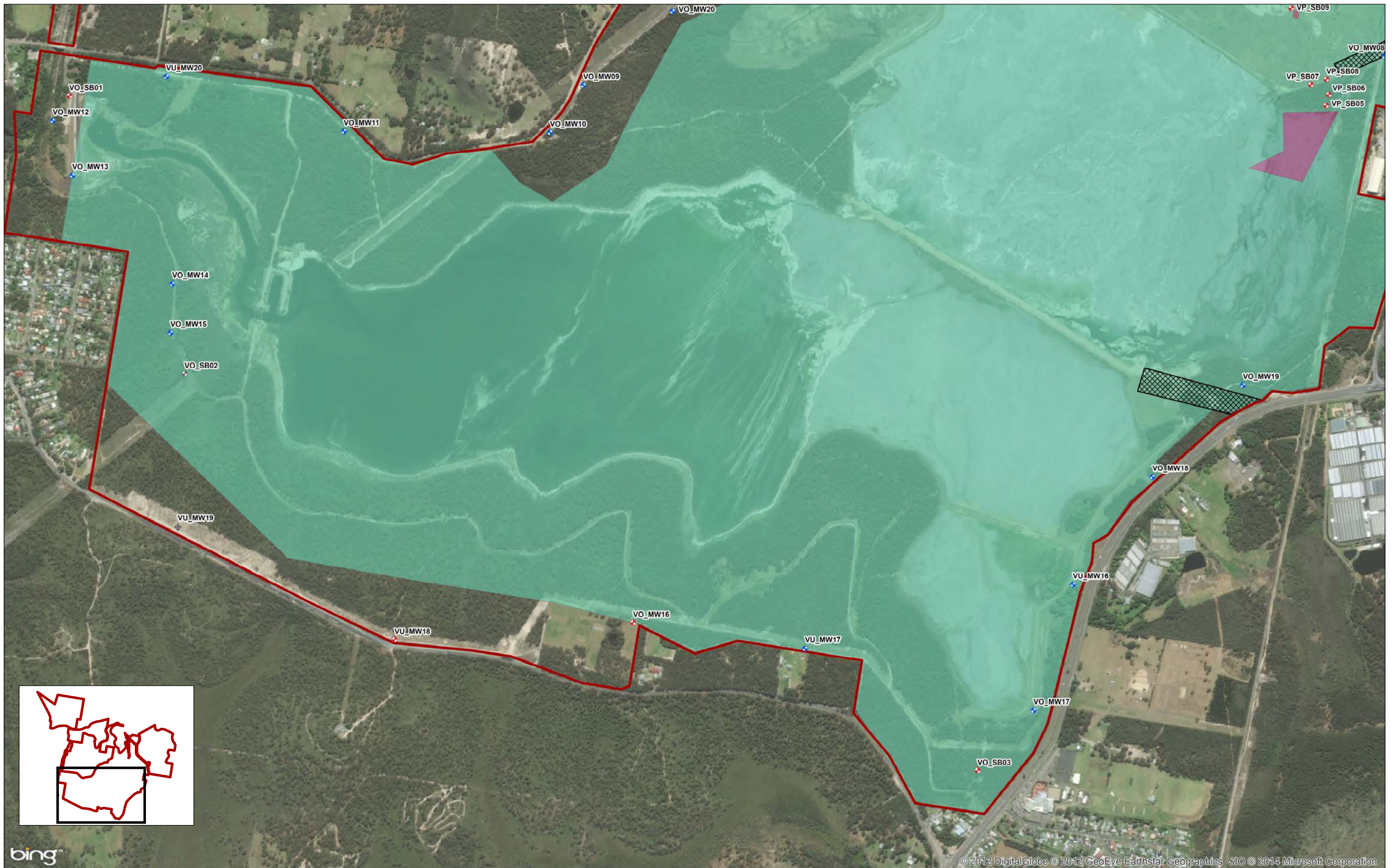


© 2014 DigitalGlobe © 2014 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

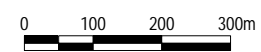
Client: Delta Electricity	<b>Figure 6.2 - Completed Sampling Locations</b>
Drawing No: 0237747s_S2ESA_G006_R0.mxd	
Date: 13/06/2014	Project Symphony - Vales Point
Drawn By: GC	Stage 2 Environmental Site Assessment
Reviewed By: KD	Environmental Resources Management ANZ
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	
Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	







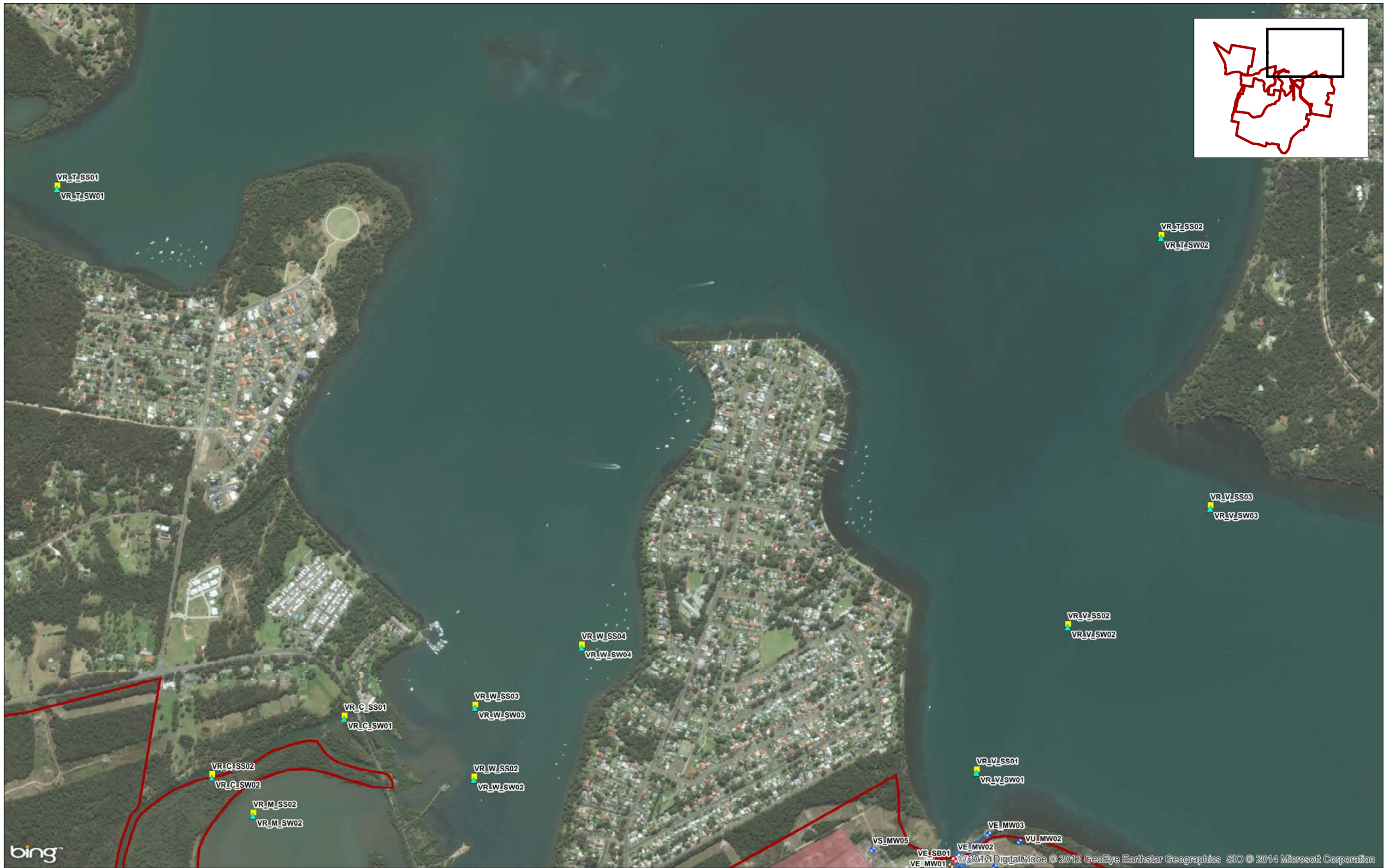
- Legend**
- Site Boundary
  - Excluded Areas (Mine Leases)
  - + Abandoned Monitoring Well
  - + Monitoring Well
  - + Abandoned Soil Bore
  - + Soil Bore
- AECs:**
- VO - Ash Dam
  - VP - Asbestos Landfills



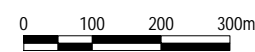
© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

Client: Delta Electricity	<b>Figure 6.3 - Completed Sampling Locations</b>
Drawing No: 0237747s_S2ESA_G007_R0.mxd	Project Symphony - Vales Point
Date: 30/04/2014	Stage 2 Environmental Site Assessment
Drawn By: GC	Reviewed By: KD
<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>	
 Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	





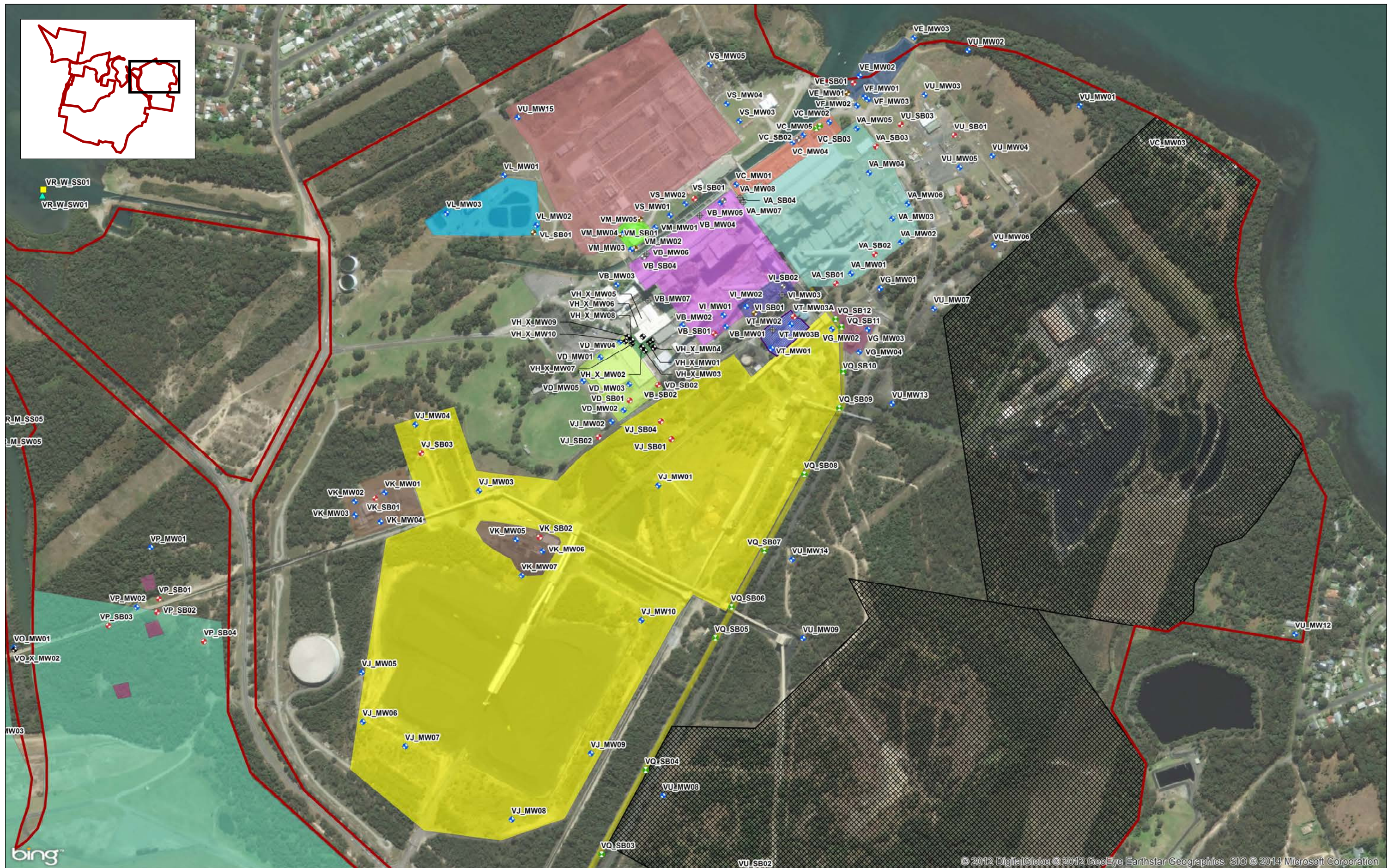
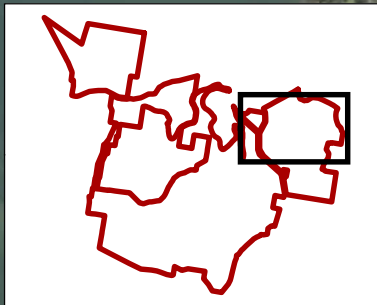
- Legend**
- Site Boundary
  - Soil Bore
  - ◆ Monitoring Well
  - Shallow Soil Bore
  - ▲ Surface Water Sample
  - Sediment Sample
  - AECs:**
  - VE - Contaminated Water Treatment System
  - VF - Waste Oil Storage Area
  - VS - TransGrid Switchyard



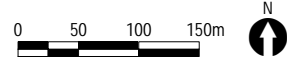
Client: Delta Electricity Drawing No: 0237747s_S2ESA_G008_R0.mxd Date: 30/04/2014 Drawing Size: A3 Drawn By: GC Reviewed By: KD	<b>Figure 6.4 - Completed Sampling Locations</b> Project Symphony - Vales Point Stage 2 Environmental Site Assessment Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	







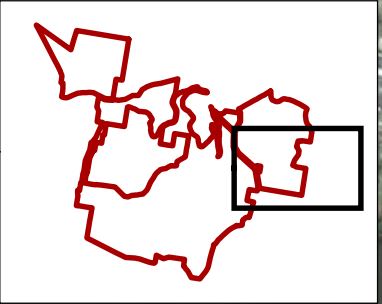
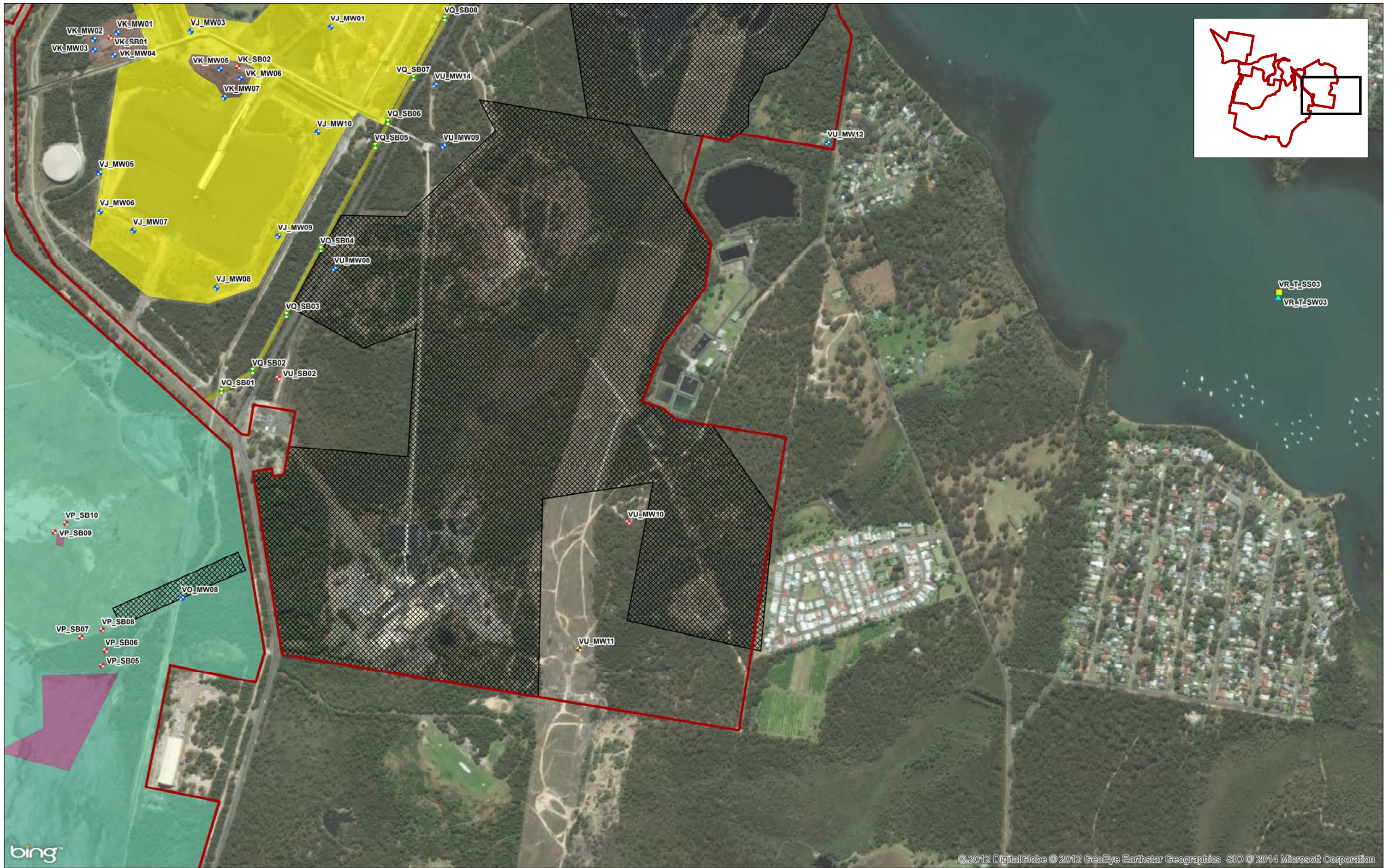
Legend	
Site Boundary	Abandoned Soil Bore
Fly Ash Plant	Shallow Soil Bore
Excluded Areas (Mine Leases)	Soil Bore
Abandoned Monitoring Well	Surface Soil Sample
Existing Monitoring Well	Surface Water Sample
Monitoring Well	Sediment Sample
AECs:	VE - Contaminated Water Treatment System
VA - B Station Power Block	VJ - Coal Storage Area
VB - A Station Power Block	VK - Mobile Plant Maintenance
VC - Transformers	VL - Sewage Treatment Plant
VH - Vehicle Refuelling Depot	VM - Chlorine Plant
VI - Water Treatment Plant	VO - Ash Dam
VF - Waste Oil Storage Area	VP - Asbestos Landfills
VG - Fuel Oil Installation	VQ - Asbestos-containing Pipeline
VS - TransGrid Switchyard	VT - Fly Ash Plant



© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

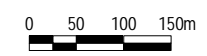
Client: Delta Electricity	<b>Figure 6.5 - Completed Sampling Locations</b>
Drawing No: 0237747s_S2ESA_G009_R0.mxd	Project Symphony - Vales Point
Date: 15/04/2014	Stage 2 Environmental Site Assessment
Drawn By: GC	Reviewed By: KD
Environmental Resources Management ANZ	
Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	





VR\_T\_SS03  
VR\_T\_SW03

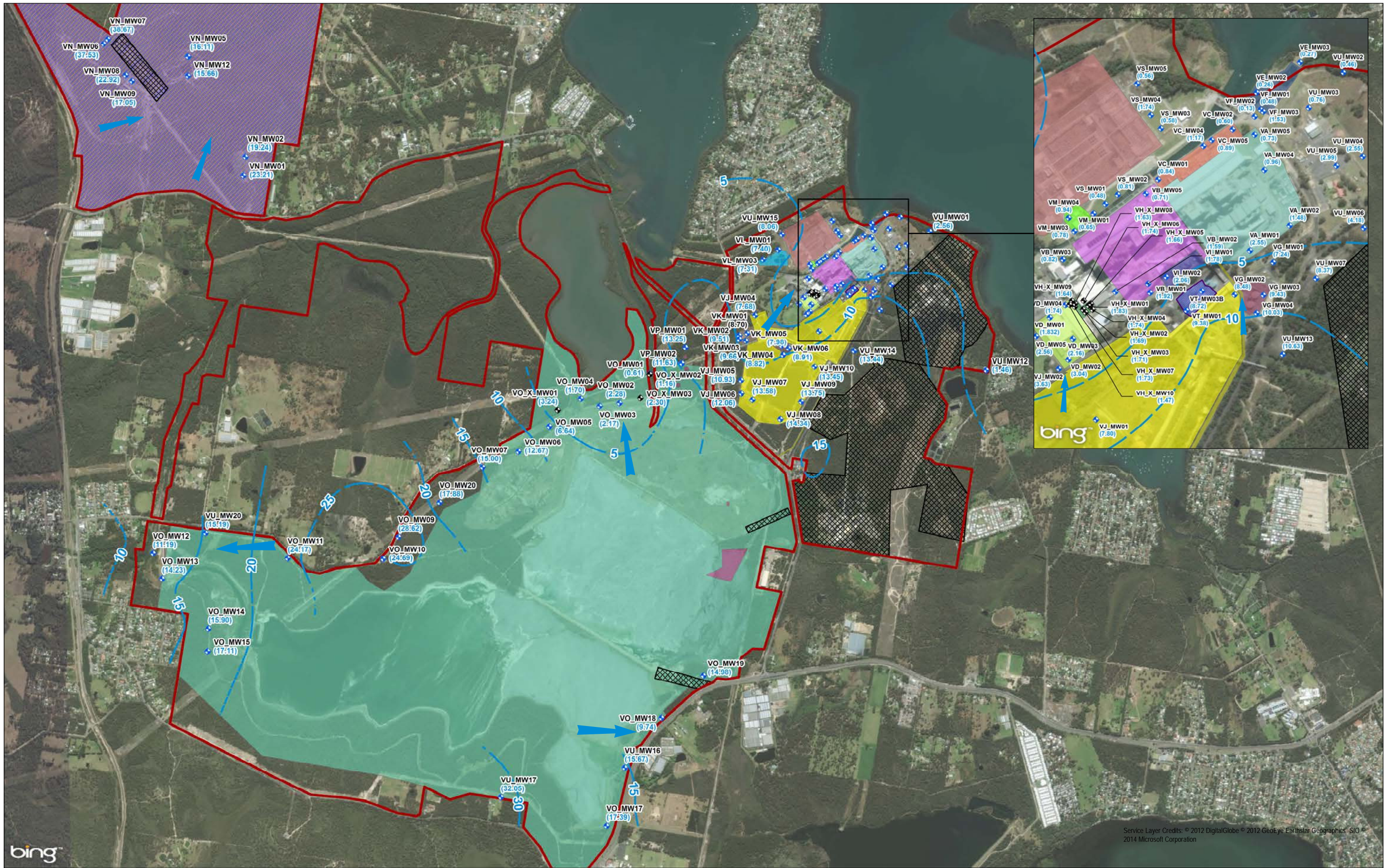
- Legend**
- Site Boundary
  - Excluded Areas (Mine Leases)
  - + Monitoring Well
  - + Shallow Soil Bore
  - + Soil Bore
  - + Surface Soil Sample
  - + Surface Water Sample
  - + Sediment Sample
- AECs:**
- VJ - Coal Storage Area
  - VK - Mobile Plant Maintenance
  - VO - Ash Dam
  - VP - Asbestos Landfills
  - VQ - Asbestos-containing Pipeline



© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

Client: Delta Electricity	<b>Figure 6.6 - Completed Sampling Locations</b>	
Drawing No: 0237747s_S2ESA_G010_R0.mxd	Project Symphony - Vales Point	
Date: 30/04/2014	Drawing Size: A3	Stage 2 Environmental Site Assessment
Drawn By: GC	Reviewed By: KD	Environmental Resources Management ANZ
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney





**Legend**

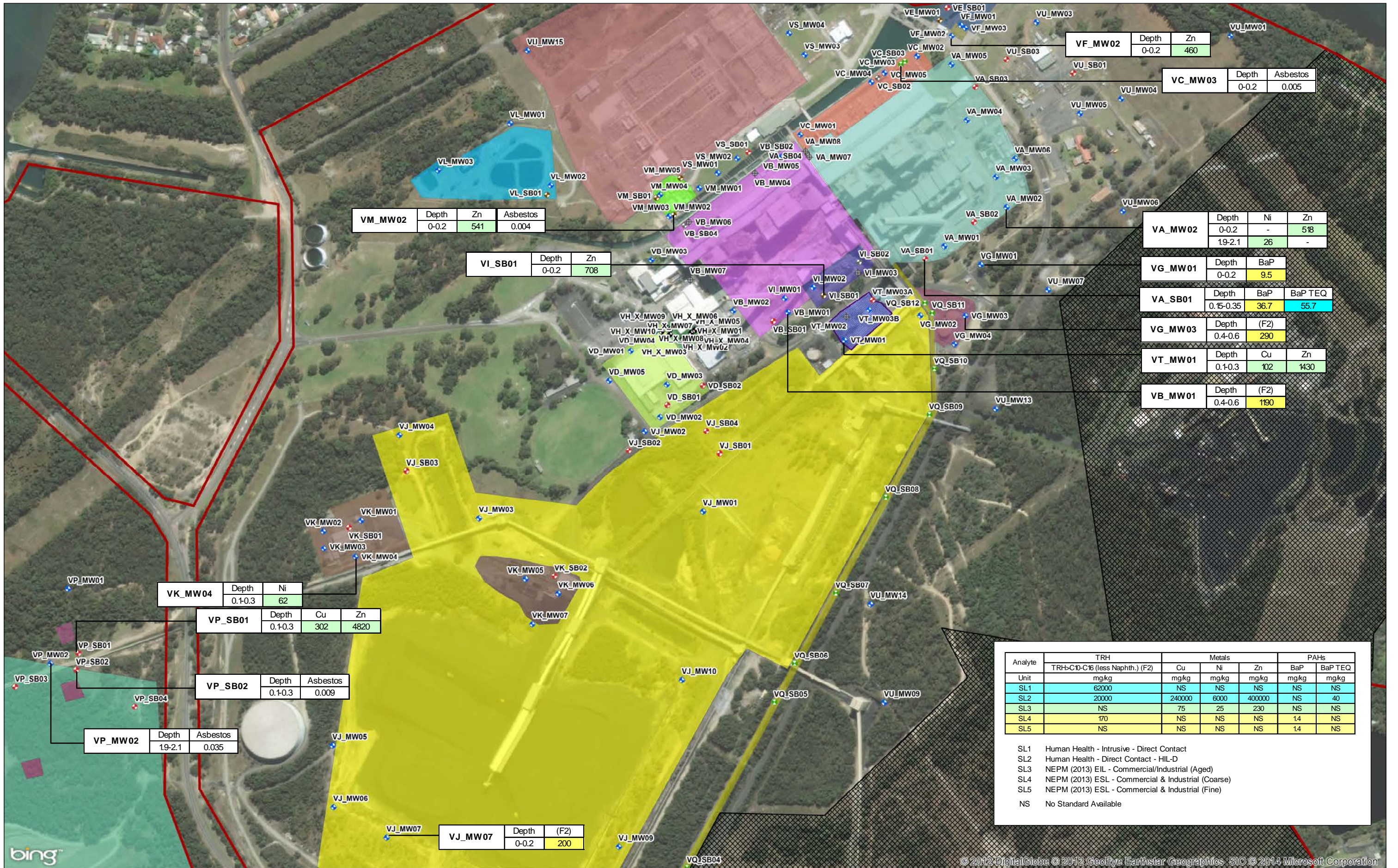
Site Boundary	VA - B Station Power Block	VE - Contaminated Water Treatment System	VJ - Coal Storage Area	VO - Ash Dam	Inferred Groundwater Elevation Contours (m AHD)
Fly Ash Plant	VB - A Station Power Block	VF - Waste Oil Storage Area	VK - Mobile Plant Maintenance	VP - Asbestos Landfills	Inferred Groundwater Flow Direction
Rail and Mandalong Coal Unloader Area	VC - Transformers	VG - Fuel Oil Installation	VL - Sewage Treatment Plant	VQ - Asbestos-containing Pipeline	Corrected Groundwater Elevation (m AHD)
Excluded Areas (Mine Leases)	VD - Main Store	VH - Vehicle Refuelling Depot	VM - Chlorine Plant	VN - Mandalong and Rail Coal Unloader	
Existing Monitoring Well	VI - Water Treatment Plant	VT - Fly Ash Plant			
Monitoring Well					

Client: Delta Electricity	<b>Figure 7 - Groundwater Elevations and Contouring</b>
Drawing No: 0237747s_S2ESA_G011_R1.mxd	Project Symphony - Vales Point
Date: 30/04/2014	Stage 2 Environmental Site Assessment
Drawn By: GC	Reviewed By: WG
<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	
<p>Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney</p>	



Service Layer Credits: © 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation





<b>VM_MW02</b>	Depth	Zn	Asbestos
	0-0.2	541	0.004

<b>VI_SB01</b>	Depth	Zn
	0-0.2	708

<b>VF_MW02</b>	Depth	Zn
	0-0.2	460

<b>VC_MW03</b>	Depth	Asbestos
	0-0.2	0.005

<b>VA_MW02</b>	Depth	Ni	Zn
	0-0.2	-	518
	1.9-2.1	26	-

<b>VG_MW01</b>	Depth	BaP
	0-0.2	9.5

<b>VA_SB01</b>	Depth	BaP	BaP TEQ
	0.15-0.35	36.7	55.7

<b>VG_MW03</b>	Depth	(F2)
	0.4-0.6	290

<b>VT_MW01</b>	Depth	Cu	Zn
	0.1-0.3	102	1430

<b>VB_MW01</b>	Depth	(F2)
	0.4-0.6	190

<b>VK_MW04</b>	Depth	Ni
	0.1-0.3	62

<b>VP_SB01</b>	Depth	Cu	Zn
	0.1-0.3	302	4820

<b>VP_SB02</b>	Depth	Asbestos
	0.1-0.3	0.009

<b>VP_MW02</b>	Depth	Asbestos
	1.9-2.1	0.035

<b>VJ_MW07</b>	Depth	(F2)
	0-0.2	200

Analyte	TRH	Metals			PAHs	
	TRH-C10-C16 (less Naphth.) (F2)	Cu	Ni	Zn	BaP	BaP TEQ
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SL1	62000	NS	NS	NS	NS	NS
SL2	20000	240000	6000	400000	NS	40
SL3	NS	75	25	230	NS	NS
SL4	170	NS	NS	NS	1.4	NS
SL5	NS	NS	NS	NS	1.4	NS

- SL1 Human Health - Intrusive - Direct Contact
- SL2 Human Health - Direct Contact - HIL-D
- SL3 NEPM (2013) EIL - Commercial/Industrial (Aged)
- SL4 NEPM (2013) ESL - Commercial & Industrial (Coarse)
- SL5 NEPM (2013) ESL - Commercial & Industrial (Fine)
- NS No Standard Available

**Client:** Delta Electricity

**Drawing No:** 0237747s\_S2ESA\_G012\_R0.mxd

**Date:** 14/05/2014

**Drawn By:** GC

**Reviewed By:** KD

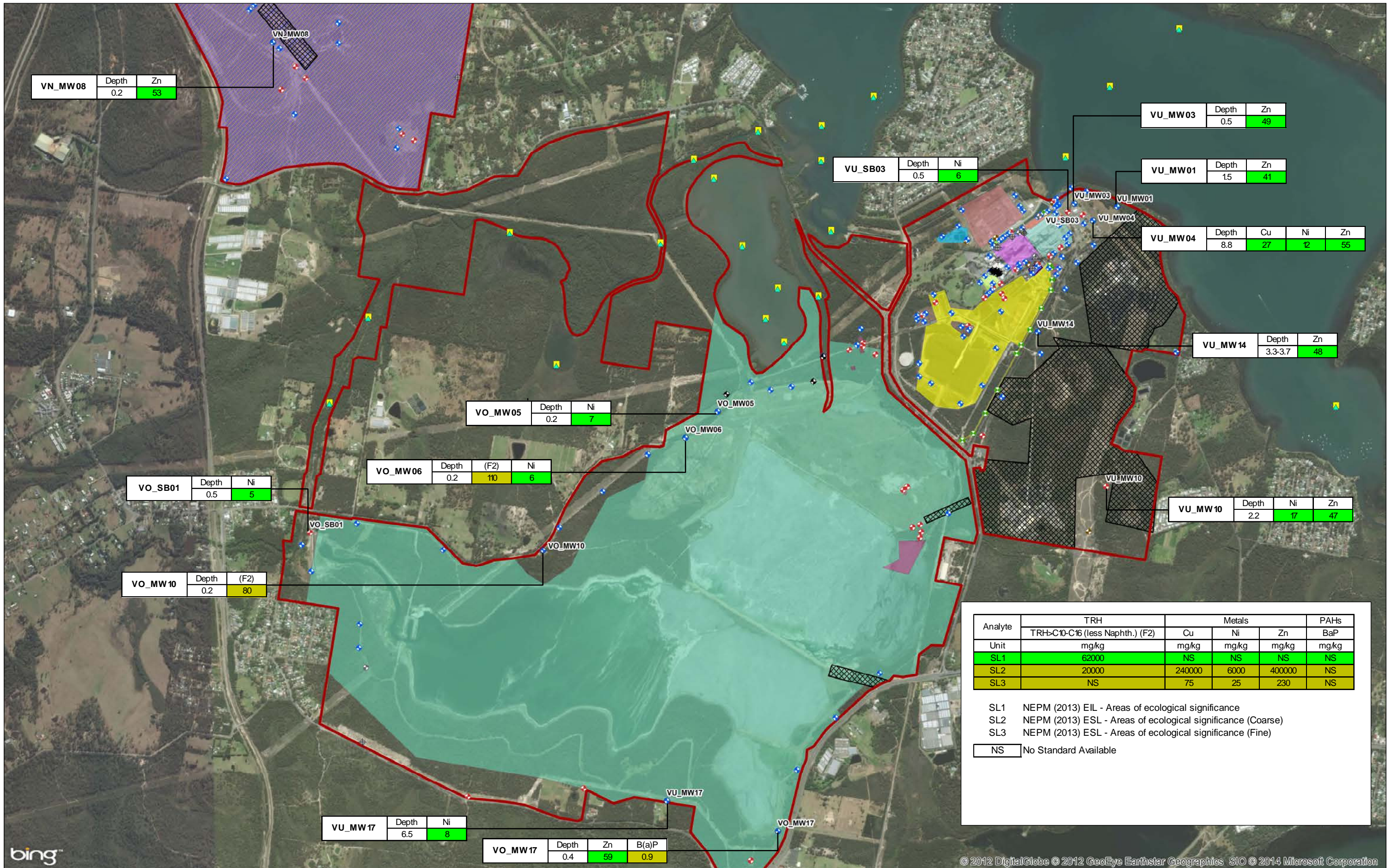
**Figure 8.1 - Soil Analytical Results (Exceedances Only)**

Project Symphony - Vales Point  
Stage 2 Environmental Site Assessment

Environmental Resources Management ANZ  
Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney

**ERM**





VN_MW08	Depth	Zn
	0.2	53

VU_MW03	Depth	Zn
	0.5	49

VU_SB03	Depth	Ni
	0.5	6

VU_MW01	Depth	Zn
	1.5	41

VU_MW04	Depth	Cu	Ni	Zn
	8.8	27	12	55

VU_MW14	Depth	Zn
	3.3-3.7	48

VO_MW05	Depth	Ni
	0.2	7

VO_MW06	Depth	(F2)	Ni
	0.2	110	6

VO_SB01	Depth	Ni
	0.5	5

VU_MW10	Depth	Ni	Zn
	2.2	17	47

VO_MW10	Depth	(F2)
	0.2	80

VU_MW17	Depth	Ni
	6.5	8

VO_MW17	Depth	Zn	B(a)P
	0.4	59	0.9

Analyte	TRH	Metals			PAHs
	TRH-C10-C16 (less Naphth.) (F2)	Cu	Ni	Zn	BaP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SL1	62000	NS	NS	NS	NS
SL2	20000	240000	6000	400000	NS
SL3	NS	75	25	230	NS

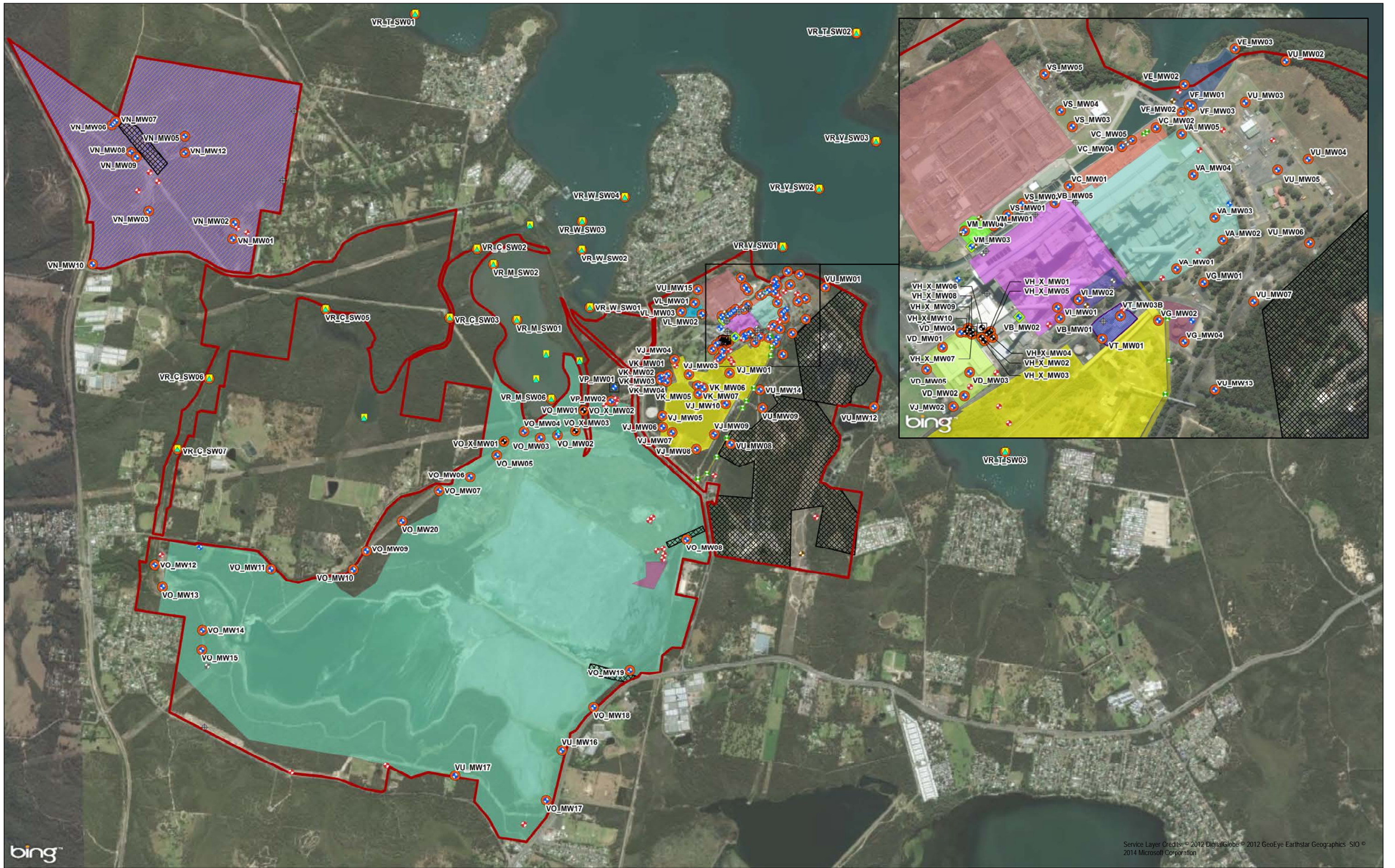
SL1 NEPM (2013) EIL - Areas of ecological significance  
 SL2 NEPM (2013) ESL - Areas of ecological significance (Coarse)  
 SL3 NEPM (2013) ESL - Areas of ecological significance (Fine)  
 NS No Standard Available

- Legend**
- Site Boundary
  - Fly Ash Plant
  - Rail and Mandalong Coal Unloader Area
  - Excluded Areas (Mine Leases)
  - Abandoned Monitoring Well
  - Existing Monitoring Well
  - Monitoring Well
  - Abandoned Soil Bore
  - Shallow Soil Bore
  - Soil Bore
  - Surface Soil Sample
  - Surface Water Sample
  - Sediment Sample
  - AECs:
    - VA - B Station Power Block
    - VB - A Station Power Block
    - VC - Transformers
    - VD - Main Store
    - VE - Contaminated Water Treatment System
    - VF - Waste Oil Storage Area
    - VG - Fuel Oil Installation
    - VH - Vehicle Refuelling Depot
    - VI - Water Treatment Plant
  - VJ - Coal Storage Area
  - VK - Mobile Plant Maintenance
  - VL - Sewage Treatment Plant
  - VM - Chlorine Plant
  - VN - Mandalong and Rail Coal Unloader
  - VO - Ash Dam
  - VP - Asbestos Landfills
  - VQ - Asbestos-containing Pipeline
  - VS - TransGrid Switchyard
  - VT - Fly Ash Plant

© 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation

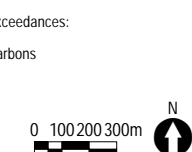
Client: Delta Electricity	<b>Figure 8.2 - Soil Analytical Results - Ecological Significance (Exceedances Only)</b>
Drawing No: 0237747s_S2ESA_G013_R0.mxd	Project Symphony - Vales Point
Date: 30/04/2014 Drawing Size: A3	Stage 2 Environmental Site Assessment
Drawn By: GC Reviewed By: KD	Environmental Resources Management ANZ
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	
Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	





- Legend**
- Site Boundary
  - Fly Ash Plant
  - Rail and Mandalong Coal Unloader Area
  - Excluded Areas (Mine Leases)
  - Abandoned Monitoring Well
  - Existing Monitoring Well
  - Monitoring Well
  - Abandoned Soil Bore
  - Shallow Soil Bore
  - + Soil Bore
  - + Surface Soil Sample
  - + Surface Water Sample
  - + Sediment Sample
  - + AECs:
  - VA - B Station Power Block
  - VB - A Station Power Block
  - VC - Transformers
  - VD - Main Store
  - VE - Contaminated Water Treatment System
  - VF - Waste Oil Storage Area
  - VG - Fuel Oil Installation
  - VH - Vehicle Refuelling Depot
  - VI - Water Treatment Plant
  - VJ - Coal Storage Area
  - VK - Mobile Plant Maintenance
  - VL - Sewage Treatment Plant
  - VM - Chlorine Plant
  - VN - Mandalong and Rail Coal Unloader
  - VO - Ash Dam
  - VP - Asbestos Landfills
  - VQ - Asbestos-containing Pipeline
  - VS - TransGrid Switchyard
  - VT - Fly Ash Plant

Client: Delta Electricity	<b>Figure 9 - Summary of Groundwater and Surface Water Screening Level Exceedances</b>	<p>Project Symphony - Vales Point Stage 2 Environmental Site Assessment Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney</p>
Drawing No: 0237747s_S2ESA_G014_R0.mxd	Drawing Size: A3	
Date: 16/06/2014	Reviewed By: KD	
Drawn By: GC		
<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>		



Service Layer Credits: © 2012 DigitalGlobe © 2012 GeoEye Earthstar Geographics SIO © 2014 Microsoft Corporation



Annex B

Tables

Location ID	AEC	Location Type	X Coordinate (GDA 94)	Y Coordinate (GDA 94)	Elevation (mAHD)	Survey method
VA_MW01	VA	Monitoring well	364359.44	6329884.54	3.156	Surveyed
VA_MW02	VA	Monitoring well	364448	6329941	3.025	Surveyed
VA_MW03	VA	Monitoring well	364433.08	6329983.36	3.21	Surveyed
VA_MW04	VA	Monitoring well	364391.55	6330065.19	3.386	Surveyed
VA_MW05	VA	Monitoring well	364369.58	6330144.54	3.312	Surveyed
VA_MW06	VA	Monitoring well	364460.65	6330009.69	3.295	Surveyed
VA_MW07	VA	Abandoned monitoring well	364166.29	6330012.04	-	Approximate
VA_MW08	VA	Abandoned monitoring well	364160.81	6330020.84	-	Approximate
VA_SB01	VA	Soil bore	364332	6329867	3.183	Surveyed
VA_SB02	VA	Soil bore	364402	6329919	3.216	Surveyed
VA_SB03	VA	Soil bore	364404	6330113	3.314	Surveyed
VA_SB04	VA	Abandoned soil bore	364163	6330017	-	Approximate
VB_MW01	VB	Monitoring well	364135.77	6329790.1	2.987	Surveyed
VB_MW02	VB	Monitoring well	364058	6329792	2.856	Surveyed
VB_MW03	VB	Monitoring well	363941	6329865	3.35	Surveyed
VB_MW04	VB	Abandoned monitoring well	364088	6329989	-	Approximate
VB_MW05	VB	Monitoring well	364126	6330012	2.913	Surveyed
VB_MW06	VB	Abandoned monitoring well	363994	6329919	-	Approximate
VB_MW07	VB	Abandoned monitoring well	363996	6329836	-	Approximate
VB_SB01	VB	Soil Bore	364115	6329777	2.947	ERM 2014
VB_SB02	VB	Abandoned soil bore	364131	6330016	2.74	Approximate
VB_SB04	VB	Abandoned soil bore	363987.84	6329914.51	-	Approximate
VC_MW01	VC	Monitoring well	364153.47	6330044.11	3.006	Surveyed
VC_MW02	VC	Monitoring well	364320.52	6330156.45	3.086	Surveyed
VC_MW03	VC	Surface soil sample	364282.94	6330134.59	-	GPS
VC_MW04	VC	Monitoring well	364254.83	6330119.22	2.962	Surveyed
VC_MW05	VC	Monitoring well	364274.02	6330132.63	2.96	Surveyed
VC_SB02	VC	Abandoned soil bore	364264.14	6330125.35	-	Approximate
VC_SB03	VC	Surface soil sample	364297	6330143	-	GPS
VD_MW01	VD	Monitoring well	363911	6329735	2.766	Surveyed
VD_MW02	VD	Monitoring well	363952.72	6329639.91	3.342	Surveyed
VD_MW03	VD	Monitoring well	363962.53	6329686.34	2.842	Surveyed
VD_MW04	VD	Monitoring well	363945.65	6329762.26	2.808	Surveyed
VD_MW05	VD	Monitoring well	363880	6329692	6.679	Surveyed
VD_SB01	VD	Soil bore	363963.31	6329657.3	2.787	Surveyed
VD_SB02	VD	Soil bore	364014	6329685	-	GPS
VE_MW01	VE	Soil bore	364353	6330208	-	GPS
VE_MW02	VE	Monitoring well	364375	6330239	1.685	Surveyed
VE_MW03	VE	Monitoring well	364471.74	6330307.39	1.067	Surveyed
VE_SB01	VE	Soil bore	364364	6330226	-	GPS
VF_MW01	VF	Monitoring well	364383	6330201	2.520	Surveyed
VF_MW02	VF	Monitoring well	364370	6330186	3.114	Surveyed
VF_MW03	VF	Monitoring well	364389	6330197	2.952	Surveyed
VG_MW01	VG	Monitoring well	364412	6329858	16.654	Surveyed
VG_MW02	VG	Monitoring well	364325	6329786	16.002	Surveyed
VG_MW03	VG	Monitoring well	364390	6329785	17.719	Surveyed
VG_MW04	VG	Monitoring well	364374	6329744	18.032	Surveyed
VH_X_MW01	VH	Monitoring Well	363997	6329761	2.930	Surveyed
VH_X_MW02	VH	Monitoring Well	363985.57	6329752.71	2.595	Surveyed
VH_X_MW03	VH	Monitoring Well	363990.8	6329745.96	2.762	Surveyed
VH_X_MW04	VH	Monitoring Well	364006.68	6329752.22	2.766	Surveyed
VH_X_MW05	VH	Monitoring Well	364002.71	6329764.73	2.847	Surveyed
VH_X_MW06	VH	Monitoring Well	363986.77	6329771.98	2.873	Surveyed
VH_X_MW07	VH	Monitoring Well	363966.86	6329758.42	2.796	Surveyed
VH_X_MW08	VH	Monitoring Well	363967.11	6329765.47	2.794	Surveyed
VH_X_MW09	VH	Monitoring Well	363960.11	6329771.44	2.804	Surveyed
VH_X_MW10	VH	Monitoring Well	363955.16	6329762.88	2.798	Surveyed
VI_MW01	VI	Monitoring well	364130.96	6329810.05	2.929	Surveyed
VI_MW02	VI	Monitoring well	364171.77	6329825.62	3.011	Surveyed
VI_MW03	VI	Abandoned monitoring well	364235.91	6329846.47	-	Approximate
VI_SB01	VI	Soil bore	364187	6329814	-	GPS
VI_SB02	VI	Abandoned soil bore	364237.88	6329861.84	-	Approximate
VJ_MW01	VJ	Monitoring well	364014	6329505	10.555	Surveyed
VJ_MW02	VJ	Monitoring well	363931	6329619	7.872	Surveyed
VJ_MW03	VJ	Monitoring well	363694	6329495	9.189	Surveyed
VJ_MW04	VJ	Monitoring well	363580	6329614	9.812	Surveyed
VJ_MW05	VJ	Monitoring well	363484	6329170	16.955	Surveyed
VJ_MW06	VJ	Monitoring well	363486	6329082	18.183	Surveyed
VJ_MW07	VJ	Monitoring well	363562	6329038	17.664	Surveyed
VJ_MW08	VJ	Monitoring well	363752	6328906	18.67	Surveyed
VJ_MW09	VJ	Monitoring well	363893.85	6329025.15	18.782	Surveyed
VJ_MW10	VJ	Monitoring well	363984.09	6329263.56	14.533	Surveyed
VJ_SB01	VJ	Soil Bore	364038	6329588	-	GPS
VJ_SB02	VJ	Soil Bore	363908	6329592	-	GPS
VJ_SB03	VJ	Soil Bore	363590	6329563	10.240	Surveyed
VJ_SB04	VJ	Soil Bore	364019	6329620	-	GPS
VK_MW01	VK	Monitoring well	363525	6329492	12.810	Surveyed
VK_MW02	VK	Monitoring well	363471	6329476	13.474	Surveyed
VK_MW03	VK	Monitoring well	363472	6329452	13.576	Surveyed
VK_MW04	VK	Monitoring well	363517	6329440	12.974	Surveyed
VK_MW05	VK	Monitoring well	363760	6329408	13.168	Surveyed
VK_MW06	VK	Monitoring well	363807	6329387	13.313	Surveyed
VK_MW07	VK	Monitoring well	363770	6329344	13.556	Surveyed
VK_SB01	VK	Soil Bore	363508	6329482	-	GPS
VK_SB02	VK	Soil Bore	363802	6329413	12.236	Surveyed
VL_MW01	VL	Monitoring well	363738	6330061	10.013	Surveyed

Location ID	AEC	Location Type	X Coordinate (GDA 94)	Y Coordinate (GDA 94)	Elevation (mAHD)	Survey method
VL_MW02	VL	Monitoring well	363797	6329972	7.679	Surveyed
VL_MW03	VL	Monitoring well	363635	6329993	13.097	Surveyed
VL_SB01	VL	Soil bore	363791	6329958	-	Approximate
VM_MW01	VM	Monitoring well	364009	6329968	3.045	Surveyed
VM_MW02	VM	Shallow soil bore	363985	6329939	-	GPS
VM_MW03	VM	Monitoring well	363966	6329928	2.971	Surveyed
VM_MW04	VM	Monitoring well	363953	6329958	2.973	Surveyed
VM_MW05	VM	Soil bore	363982	6329982	-	GPS
VM_SB01	VM	Soil bore	363948	6329954	-	GPS
VN_MW01	VN	Monitoring well	360094	6330566	26.582	Surveyed
VN_MW02	VN	Monitoring well	360109	6330692	20.664	Surveyed
VN_MW03	VN	Monitoring well	359432	6330787	30.926	Surveyed
VN_MW04	VN	Abandoned monitoring well	360491	6331025	-	GPS
VN_MW05	VN	Monitoring well	359717	6331378	18.96	Surveyed
VN_MW06	VN	Monitoring well	359141.91	6331464.85	44.2	Surveyed
VN_MW07	VN	Monitoring well	359171	6331496	45.609	Surveyed
VN_MW08	VN	Monitoring well	359293	6331252	25.569	Surveyed
VN_MW09	VN	Monitoring well	359335	6331211	21.548	Surveyed
VN_MW10	VN	Monitoring well	358988	6330365	33.241	Surveyed
VN_MW11	VN	Abandoned monitoring well	360579	6331576	-	GPS
VN_MW12	VN	Monitoring well	359717	6331246	18.232	Surveyed
VN_SB01	VN	Soil bore	360132	6330654	23.898	Surveyed
VN_SB02	VN	Soil bore	359439.72	6331092.84	-	GPS
VN_SB03	VN	Soil bore	360207.08	6330616.04	27.029	Surveyed
VN_SB04	VN	Soil bore	359504.88	6331018.47	-	GPS
VN_SB05	VN	Soil bore	359346.32	6330944.99	-	GPS
VO_MW01	VO	Monitoring well	362861.99	6329214.67	1.568	Surveyed
VO_MW02	VO	Monitoring well	362656.41	6329015.92	6.195	Surveyed
VO_MW03	VO	Monitoring well	362520	6328994	5.995	Surveyed
VO_MW04	VO	Monitoring well	362393	6329045	2.545	Surveyed
VO_MW05	VO	Monitoring well	362178	6328856	10.172	Surveyed
VO_MW06	VO	Monitoring well	361968	6328686	12.805	Surveyed
VO_MW07	VO	Monitoring well	361724	6328578	18.091	Surveyed
VO_MW08	VO	Monitoring well	363673	6328193	22.595	Surveyed
VO_MW09	VO	Monitoring well	361150	6328102	35.384	Surveyed
VO_MW10	VO	Monitoring well	361046	6327954	30.956	Surveyed
VO_MW11	VO	Monitoring well	360396	6327957	32.168	Surveyed
VO_MW12	VO	Monitoring well	359480	6327991	11.192	Surveyed
VO_MW13	VO	Monitoring well	359541.22	6327817.94	17.887	Surveyed
VO_MW14	VO	Monitoring well	359856	6327476	17.615	Surveyed
VO_MW15	VO	Monitoring well	359850.59	6327322.6	17.636	Surveyed
VO_MW16	VO	Soil Bore	361307	6326409	-	GPS
VO_MW17	VO	Monitoring well	362568.15	6326131.78	18.06	Surveyed
VO_MW18	VO	Monitoring well	362942	6326868	14.965	Surveyed
VO_MW19	VO	Monitoring well	363227	6327157	18.484	Surveyed
VO_MW20	VO	Monitoring well	361431	6328336	24.123	Surveyed
VO_SB01	VO	Soil Bore	359532	6328069	-	GPS
VO_SB02	VO	Abandoned soil bore	359895	6327194	-	GPS
VO_SB03	VO	Soil Bore	362392	6325943	26.97	Surveyed
VO_X_MW01	VO	Monitoring Well	362235	6328967	6.943	Surveyed
VO_X_MW02	VO	Monitoring Well	362862	6329211	2.8	Surveyed
VO_X_MW03	VO	Monitoring Well	362798.28	6329049.66	6.139	Surveyed
VP_MW01	VP	Monitoring well	363106	6329394	16.153	Surveyed
VP_MW02	VP	Monitoring well	363081	6329287	12.991	Surveyed
VP_SB01	VP	Shallow soil bore	363121	6329302	-	GPS
VP_SB02	VP	Soil Bore	363117.7	6329278.18	-	GPS
VP_SB03	VP	Soil Bore	363030.46	6329253.89	-	GPS
VP_SB04	VP	Soil Bore	363201.36	6329225.57	-	GPS

Well ID	Gauging Date	Event	TOC Elevation (mAHD)	Ground Surface Elevation (mAHD)	Total Measured Depth (mbTOC)	Depth to Water (mbTOC)	Well Screened Interval (m)	Comments
VA_MW01	25-Mar-14	Pre	3.102	3.156	2.160	0.555	0.9-2.8	Slightly cloudy, no odour
VA_MW02	25-Mar-14	Pre	2.852	3.025	13.875	1.375	11-14	Clear, no odour
VA_MW03	26-Mar-14	Pre	3.103	3.21	11.970	2.535	8-12	Clear, no odour
VA_MW04	26-Mar-14	Pre	3.286	3.386	5.835	2.330	3-6	Clear, no odour
VA_MW05	26-Mar-14	Pre	3.16	3.312	7.660	2.430	3.5-7.5	Turbid, light orange, no odour
VA_MW06	28-Mar-14	Pre	3.172	3.295	11.620	1.120	7.5-11.5	Cloudy, no odour
VB_MW01	25-Mar-14	Pre	2.83	2.987	4.035	0.905	1-4	Slightly cloudy, no odour
VB_MW02	25-Mar-14	Pre	2.775	2.856	4.060	1.185	1-4	Clear, no odour
VB_MW03	31-Mar-14	Pre	3.206	3.35	5.267	2.385	2-5.1	Cloudy, dark grey, slight sulphur odour
VB_MW05	01-Apr-14	Pre	2.811	2.913	6.125	2.100	2-6	Clear, no odour
VC_MW01	06-Mar-14	Pre	2.933	3.006	5.525	2.090	1.5-5.5	Clear, no odour
VC_MW02	26-Mar-14	Pre	2.976	3.086	4.030	2.380	1-4	Cloudy, no odour
VC_MW05	26-Mar-14	Pre	2.789	2.96	4.035	1.895	1-4	Clear, no odour
VC_MW04	28-Mar-14	Pre	2.916	2.962	40.250	1.745	1-4	Slightly cloudy, no odour
VD_MW01	31-Mar-14	Pre	2.702	2.766	4.045	0.870	0.5-3.5	Slightly cloudy, no odour
VD_MW02	26-Mar-14	Pre	4.056	3.342	4.384	1.016	0.5-3.5	Clear, colourless, no odour
VD_MW03	26-Mar-14	Pre	2.72	2.842	3.550	0.555	0.5-3.5	Clear, colourless, no odour
VD_MW04	27-Mar-14	Pre	2.672	2.808	4.045	0.930	1-4	Slightly cloudy, no odour
VD_MW05	31-Mar-14	Pre	6.617	6.679	6.005	4.060	3-6	Turbid, light grey, slight sulphur odour
VE_MW02	28-Mar-14	Pre	1.606	1.685	4.040	1.345	1-4	Slightly cloudy, no odour
VE_MW03	28-Mar-14	Pre	1.781	1.067	4.730	1.515	1-4	Slightly cloudy, no odour
VF_MW01	25-Mar-14	Pre	2.432	2.52	5.895	1.950	3-6	Clear, no odour
VF_MW02	25-Mar-14	Pre	3.145	3.114	3.755	3.275	0.5-3.7	Slightly cloudy, no odour
VF_MW03	25-Mar-14	Pre	2.765	2.952	6.850	1.235	2.5-6.5	Turbid, light orange, no odour
VG_MW01	31-Mar-14	Pre	16.55	16.654	14.660	9.305	11.8-14.8	Cloudy, no odour
VG_MW02	31-Mar-14	Pre	16.642	16.002	8.675	8.165	6-9	Cloudy, no odour, sheen observed
VG_MW03	31-Mar-14	Pre	17.611	17.719	9.910	8.180	6-10	Clear, no odour
VG_MW04	31-Mar-14	Pre	17.928	18.032	13.610	7.901	10.7-13.7	Clear, no odour, sheen observed
VH_X_MW01	24-Mar-14	Pre	2.93	3.03	5.180	1.100	Not available	Clear, no odour
VH_X_MW02	25-Mar-14	Pre	2.595	2.785	5.420	0.903	Not available	Slightly cloudy, no odour
VH_X_MW03	24-Mar-14	Pre	2.762	2.843	5.215	1.050	Not available	Slightly cloudy, no odour
VH_X_MW04	24-Mar-14	Pre	2.766	2.845	5.210	1.030	Not available	Clear, no odour
VH_X_MW05	24-Mar-14	Pre	2.847	2.923	3.510	1.190	Not available	Clear, no odour
VH_X_MW06	01-Apr-14	Pre	2.873	2.96	3.300	1.136	Not available	Cloudy, light brown, no odour
VH_X_MW07	25-Mar-14	Pre	2.796	2.892	4.340	1.070	Not available	Slightly cloudy, no odour
VH_X_MW08	25-Mar-14	Pre	2.794	2.898	3.284	1.160	Not available	Clear, no odour
VH_X_MW09	25-Mar-14	Pre	2.804	2.874	3.380	1.165	Not available	Slightly cloudy, no odour
VH_X_MW10	25-Mar-14	Pre	2.798	2.9	3.510	1.327	Not available	Clear, no odour
VI_MW01	25-Mar-14	Pre	2.828	2.929	3.940	1.050	4.5-7.5	Slightly cloudy, no odour
VI_MW02	01-Apr-14	Pre	2.824	3.011	4.000	0.765	2-5	Cloudy, no odour
VJ_MW01	26-Mar-14	Pre	11.339	10.555	8.580	3.540	4.7-7.5	No odour
VJ_MW02	28-Mar-14	Pre	7.704	7.872	5.025	4.075	2-5	Cloudy, no odour
VJ_MW03	26-Mar-14	Pre	9.942	9.189	7.400	3.950	4.3-6.3	Slight sulphur odour
VJ_MW04	26-Mar-14	Pre	10.583	9.812	7.800	2.900	4-7	No odour
VJ_MW05	26-Mar-14	Pre	17.654	16.955	8.780	6.720	5-8	Clear
VJ_MW06	26-Mar-14	Pre	18.863	18.183	9.100	6.800	5-8	Clear, no odour
VJ_MW07	26-Mar-14	Pre	18.387	17.664	8.380	4.810	5-8	Clear, no odour
VJ_MW08	26-Mar-14	Pre	19.363	18.67	6.540	5.020	2.8-5.8	No odour
VJ_MW09	28-Mar-14	Pre	19.474	18.782	6.735	5.720	3-6	Turbid, light yellow, no odour
VJ_MW10	28-Mar-14	Pre	15.226	14.533	6.625	1.780	2.8-5.8	Turbid, light orange, no odour
VK_MW01	27-Mar-14	Pre	12.74	12.81	8.010	4.040	5-8	Clear, no odour
VK_MW02	27-Mar-14	Pre	13.321	13.474	6.030	3.810	3-6	Clear, no odour
VK_MW03	28-Mar-14	Pre	13.441	13.576	6.030	3.785	3-6	Clear, no odour
VK_MW04	28-Mar-14	Pre	12.888	12.974	6.130	4.070	3-6	Clear, no odour
VK_MW05	28-Mar-14	Pre	13.122	13.168	8.355	5.145	5.3-8.3	Turbid, light orange, no odour
VK_MW06	28-Mar-14	Pre	13.181	13.313	7.035	4.268	4-7	Turbid, light grey, no odour
VK_MW07	28-Mar-14	Pre	14.279	13.556	6.335	4.350	2.4-5.4	Turbid, light orange, no odour
VL_MW01	01-Apr-14	Pre	10.625	10.013	6.667	3.220	3-6	Clear, no odour
VL_MW02	01-Apr-14	Pre	8.288	7.679	7.839	3.080	4-7	Slightly cloudy light brown, no odour
VL_MW03	01-Apr-14	Pre	13.675	13.097	6.608	6.365	3-6	Cloudy light brown, no odour
VM_MW01	26-Mar-14	Pre	2.934	3.045	6.170	2.287	2-6	Slightly cloudy, no odour
VM_MW03	26-Mar-14	Pre	2.836	2.971	4.110	2.055	1.5-4.5	Slightly cloudy, no odour
VM_MW04	31-Mar-14	Pre	2.794	2.973	4.008	1.849	1-4	Cloudy grey, no odour
VN_MW01	25-Mar-14	Pre	27.384	26.582	7.930	4.170	3-7	Slightly cloudy, no odour
VN_MW02	25-Mar-14	Pre	21.382	20.664	4.755	2.145	1-4	Clear, no odour
VN_MW03	23-Mar-14	Pre	31.604	30.926	14.680	8.840	11.05-14.05	Clear, no odour
VN_MW05	23-Mar-14	Pre	19.518	18.96	8.345	3.410	3.5-7.5	Cloudy, no odour
VN_MW06	23-Mar-14	Pre	44.846	44.2	12.260	7.320	7.5-11.5	Clear, no odour
VN_MW07	23-Mar-14	Pre	46.261	45.609	11.760	7.590	7.5-11.5	Slightly cloudy, no odour
VN_MW08	23-Mar-14	Pre	26.309	25.569	7.060	3.390	4-8	Clear, no odour
VN_MW09	23-Mar-14	Pre	21.457	21.548	8.810	4.410	3-7	Turbid, light orange, no odour
VN_MW10	23-Mar-14	Pre	33.837	33.241	14.827	6.820	11-13.5	Clear, no odour
VN_MW12	23-Mar-14	Pre	18.904	18.232	5.735	3.245	2-5	Slightly cloudy, no odour
VO_MW01	31-Mar-14	Pre	2.288	1.568	4.726	1.676	1-4	Cloudy, light brown, slight sulphur odour
VO_MW02	25-Mar-14	Pre	7.034	6.195	6.93	4.75	3-6	Light yellow, turbid, sheen observed, no odour
VO_MW03	25-Mar-14	Pre	6.699	5.995	7.79	4.53	4-7	Cloudy, no odour, sheen observed
VO_MW04	25-Mar-14	Pre	3.187	2.545	8.755	1.485	4-8	Clear, no odour
VO_MW05	21-Mar-14	Pre	10.724	10.172	10.515	4.085	5-10	Slightly cloudy, no odour
VO_MW06	21-Mar-14	Pre	13.424	12.805	3.140	0.750	1-2.5	Clear, no odour
VO_MW07	21-Mar-14	Pre	18.691	18.091	10.720	3.690	6-10	Cloudy, no odour
VO_MW08	31-Mar-14	Pre	23.353	22.595	13.291	9.469	9.5-12.5	Cloudy, light brown, no odour
VO_MW09	21-Mar-14	Pre	35.935	35.384	12.600	7.320	8-12	Slightly cloudy, no odour
VO_MW10	21-Mar-14	Pre	31.657	30.956	12.705	6.965	8-12	Clear, no odour
VO_MW11	20-Mar-14	Pre	32.717	32.168	12.700	8.545	8-12	Clear, no odour
VO_MW12	20-Mar-14	Pre	11.961	11.192	3.555	0.770	1-3	Slightly cloudy, no odour
VO_MW13	20-Mar-14	Pre	18.528	17.887	5.775	4.295	2-5	Cloudy, no odour
VO_MW14	31-Mar-14	Pre	18.356	17.615	6.080	2.455	2-5	Slightly cloudy, colourless, no odour
VO_MW15	31-Mar-14	Pre	18.37	17.636	6.075	1.260	2-5	Clear, colourless, no odour
VO_MW17	31-Mar-14	Pre	18.641	18.06	5.040	1.250	1.5-4.5	Slightly cloudy grey, no odours
VO_MW18	26-Mar-14	Pre	15.643	14.965	7.785	5.905	3-7	Slightly cloudy, no odour



Well ID	Gauging Date	Event	TOC Elevation (mAHD)	Ground Surface Elevation (mAHD)	Total Measured Depth (mbTOC)	Depth to Water (mbTOC)	Well Screened Interval (m)	Comments
VO_MW19	31-Mar-14	Pre	19.239	18.484	55.000	4.260	2-5	Clear, colourless, no odour
VO_MW20	21-Mar-14	Pre	24.783	24.123	11.755	6.900	7-11	Slightly cloudy, no odour
VO_X_MW01	31-Mar-14	Pre	6.943	6.223	9.310	3.700	Not available	Clear, colourless, no odour
VO_X_MW02	31-Mar-14	Pre	2.8	1.789	11.525	1.640	Not available	Clear, colourless, no odour
VO_X_MW03	31-Mar-14	Pre	6.139	6.028	9.420	3.835	Not available	Clear, colourless, no odour
VP_MW01	01-Apr-14	Pre	16.82	16.153	9.695	3.570	6-9	Clear, no odour
VP_MW02	01-Apr-14	Pre	13.68	12.991	7.655	2.050	3-7	Clear, no odour
VS_MW01	26-Mar-14	Pre	2.992	3.053	4.910	2.510	1-5	Clear, no odour
VS_MW02	26-Mar-14	Pre	2.973	3.068	6.035	2.160	2-6	Clear, no odour
VS_MW03	26-Mar-14	Pre	3.244	3.314	5.215	2.665	2-5	Clear, slightly yellow, no odour
VS_MW04	26-Mar-14	Pre	4.398	4.476	5.080	2.655	3-5	Clear, no odour
VS_MW05	27-Mar-14	Pre	3.064	3.192	5.015	2.500	3-5	Slightly cloudy, no odour
VT_MW01	31-Mar-14	Pre	14.56	14.552	7.445	5.175	4.5-7.5	Slightly cloudy
VT_MW03B	31-Mar-14	Pre	14.093	14.239	7.045	5.375	4-7	Clear, no odour
VU_MW01	01-Apr-14	Pre	4.676	3.995	4.620	2.120	0.9-3.9	Clear, colourless, no odour
VU_MW02	01-Apr-14	Pre	5.16	4.447	7.280	4.705	3.5-6.5	Cloudy, no odour
VU_MW03	01-Apr-14	Pre	10.552	10.556	12.038	9.796	9-12	Slightly cloudy light brown, no odour
VU_MW04	01-Apr-14	Pre	9.192	8.497	10.000	6.640	6-9	Clear, colourless, no odour
VU_MW05	01-Apr-14	Pre	11.098	10.406	10.775	8.110	6.5-9.5	Clear, colourless, no odour
VU_MW06	01-Apr-14	Pre	9.462	9.552	10.110	5.280	6-10	Clear, colourless, no odour
VU_MW07	01-Apr-14	Pre	15.754	14.908	9.575	7.380	5.7-8.7	Slightly cloudy, no odour
VU_MW08	01-Apr-14	Pre	24.151	23.475	18.164	10.410	10.4-13.4	Cloudy light brown, no odour
VU_MW09	01-Apr-14	Pre	22.475	21.799	12.725	7.800	9-12	Clear, no odour
VU_MW12	01-Apr-14	Pre	3.847	4.035	6.160	7.390	3-6	Slightly cloudy, no odour
VU_MW13	31-Mar-14	Pre	19.164	18.455	11.965	8.535	8-11	Clear, light yellow, no odour
VU_MW14	01-Apr-14	Pre	22.574	21.882	12.735	9.135	9-12	Clear, no odour
VU_MW15	01-Apr-14	Pre	11.097	10.447	6.875	3.040	3-6	Clear, no odour
VU_MW16	01-Apr-14	Pre	19.69	18.945	10.200	4.020	5.5-9.5	Slightly cloudy, no odour
VU_MW17	01-Apr-14	Pre	35.629	34.758	8.435	3.580	4.5-7.5	Clear, colourless, no odour
VU_MW20	01-Apr-14	Pre	28.187	27.599	13.000	-	7-13	Well dry therefore no sample taken

Notes:

mAHD metres Australian Height Datum  
 mbTOC metres below top of casing  
 m metres  
 Pre pre-purging

\* No survey data available  
 NA Groundwater elevation not available



Table 3. GW Field Parameters  
Vales Point Power Station  
Project Symphony - 0237747

SampleCode	Field_ID	LocCode	Sample Date	Field				
				Dissolved Oxygen	EC (field)	ORP	pH (Field)	Temperature
				mg/L	µS/cm	mV	pH_Units	oC
ES1406590029	VA_MW01_250314	VA_MW01	25/03/2014	1.29	2168	-24.5	6.15	25.6
ES1406590026	VA_MW02_250314	VA_MW02	25/03/2014	0.45	714	-42	6.78	22.6
ES1406761003	VA_MW03_260314	VA_MW03	26/03/2014	1.88	583	-17	6.55	23
ES1406761016	VA_MW04_260314	VA_MW04	26/03/2014	3.67	312.9	173.5	5.98	23.4
ES1406761017	VA_MW05_260314	VA_MW05	26/03/2014	0.42	1417	281.3	4.44	22.4
ES1407023004	VA_MW06_280314	VA_MW06	28/03/2014	2.03	585	-64.5	6.46	22.9
ES1406590024	VB_MW01_250314	VB_MW01	25/03/2014	3.2	1201	114.3	4.28	26.3
ES1406590023	VB_MW02_250314	VB_MW02	25/02/2014	3.24	570	28.1	5.77	25.3
ES1407301001	VB_MW05_010414	VB_MW05	1/04/2014	4.22	1588	86.1	5.5	26
ES1406761020	VC_MW01_260314	VC_MW01	26/03/2014	2.8	1318	288.6	4.81	26.4
ES1406761018	VC_MW02_260314	VC_MW02	26/03/2014	-	10,260	43.9	5.6	25.9
ES1407023003	VC_MW04_280314	VC_MW04	28/03/2014	2.44	1875	28.2	6.15	26.3
ES1406761019	VC_MW05_260314	VC_MW05	26/03/2014	1.78	669	47.6	6.46	26.5
ES1407201006	VD_MW01_310314	VD_MW01	31/03/2014	0.84	3710	-179	4.52	26.3
ES1406761001	VD_MW02	VD_MW02	26/03/2014	0	3573	319.8	4.36	22.5
ES1406761002	VD_MW03	VD_MW03	26/03/2014	3.39	3806	218.5	5.32	25.9
ES1406907005	VD_MW04_270314	VD_MW04	27/03/2014	0.33	3619	123.9	4.7	25.4
ES1407201005	VD_MW05_310314	VD_MW05	31/03/2014	0.93	3100	-214.7	4.53	23.6
ES1407023001	VE_MW02_280314	VE_MW02	28/03/2014	0.55	3152	127.7	4.26	23.4
ES1407023002	VE_MW03_280314	VE_MW03	28/03/2014	2.5	1113	96.7	4.33	22.3
ES1406590008	VF_MW01_250314	VF_MW01	25/03/2014	2.47	553	285.7	5.12	24.5
ES1406590007	VF_MW02_250314	VF_MW02	25/03/2014	0.2	1126	18.9	5.85	27.3
ES1406590009	VF_MW03_250314	VF_MW03	25/03/2014	0.58	540	149.7	5.52	28.3
ES1407201002	VG_MW01_310314	VG_MW01	31/03/2014	4.51	234.1	129.5	5.21	23.2
ES1407201004	VG_MW02_310314	VG_MW02	31/03/2014	3.77	4419	191.1	3.89	22.4
ES1407201007	VG_MW03_310314	VG_MW03	31/03/2014	4.13	213.8	-35.9	5.13	23.5
ES1407201008	VG_MW04_310314	VG_MW04	31/03/2014	4.04	343	-40.3	5.28	23.4
ES1406495004	VH_X_MW01_240314	VH_X_MW01	24/03/2014	1.03	7064	268.4	3.36	22.3
ES1406590018	VH_X_MW02_250314	VH_X_MW02	25/03/2014	1.11	6448	184.7	3.56	23.3
ES1406495003	VH_X_MW03_240314	VH_X_MW03	24/03/2014	1.88	8345	216.8	3.56	24.2
ES1406495002	VH_X_MW04_240314	VH_X_MW04	24/03/2014	1.15	6285	238	3.32	24.2
ES1406495001	VH_X_MW05_240314	VH_X_MW05	24/03/2014	0.89	2989	227	3.38	22.1
ES1407299004	VH_X_MW06	VH_X_MW06	1/04/2014	0.57	6200	1.88	3.52	21.3
ES1406590019	VH_X_MW07_250314	VH_X_MW07	25/03/2014	0.61	5377	118.1	4.35	23.9
ES1406590020	VH_X_MW08_250314	VH_X_MW08	25/03/2014	0.67	5909	-12	3.97	24.6
ES1406590021	VH_X_MW09_250314	VH_X_MW09	25/03/2014	0.5	3331	132.6	4.14	25.8
ES1406590022	VH_X_MW10_250314	VH_X_MW10	25/03/2014	0.54	5610	125.4	3.98	24.5
ES1406590025	VI_MW01_250314	VI_MW01	25/03/2014	3.53	1337	1948	4.2	24
ES1407301008	VI_MW02_010414	VI_MW02	1/04/2014	4.18	396.8	-42.5	5.39	24.6
ES1406758006	VJ_MW01_GW	VJ_MW01	26/03/2014	1.78	1649	27.4	4.47	21.2
ES1407022006	VJ_MW02_280314	VJ_MW02	28/03/2014	-	2521	-36.4	6.07	23.9
ES1406758005	VJ_MW03_GW	VJ_MW03	26/03/2014	0.58	2853	-147.1	4.99	22.4
ES1406758004	VJ_MW04_GW	VJ_MW04	26/03/2014	0.68	453.6	22.4	4.32	20.7
ES1406758003	VJ_MW05_GW	VJ_MW05	26/03/2014	0.32	803	-65.5	4.71	20.8
ES1406758002	VJ_MW06_GW	VJ_MW06	26/03/2014	2.53	493	21.7	4.98	21.6
ES1406758001	VJ_MW07_GW	VJ_MW07	26/03/2014	3.36	243.4	24.8	4.94	21.8
ES1406758007	VJ_MW08_GW	VJ_MW08	26/03/2014	3.78	529	-34	4.93	21.9
ES1407022008	VJ_MW09_280314	VJ_MW09	28/03/2014	0.5	3048	-41.3	5.47	21.4
ES1407022007	VJ_MW10_280314	VJ_MW10	28/03/2014	-	1835	74.8	6.11	22.5
ES1406907002	VK_MW01_270314	VK_MW01	27/03/2014	0.62	382	243.9	5.16	22.4
ES1406907003	VK_MW02_270314	VK_MW02	27/03/2014	-	395.9	64.5	5.01	24.3
ES1407022001	VK_MW03_280314	VK_MW03	28/03/2014	1.72	224.4	212.3	5.38	23.5
ES1407022002	VK_MW04_280314	VK_MW04	28/03/2014	1.51	456.1	224.6	5.31	22.8
ES1407022005	VK_MW05_280314	VK_MW05	28/03/2014	1.82	2648	275.3	4.36	23.2
ES1407022004	VK_MW06_280314	VK_MW06	28/03/2014	2.49	2848	442.3	4.12	23.1
ES1407022003	VK_MW07_280314	VK_MW07	28/02/2014	0.04	6141	10.8	5.44	21.5
ES1407299002	VL_MW01	VL_MW01	1/04/2014	3.81	292	117	5.48	22.6
ES1407299001	VL_MW02	VL_MW02	1/04/2014	3.43	998	76	5.36	21.2
ES1407299007	VL_MW03	VL_MW03	1/04/2014	5.78	517	100	6.11	20.4
ES1406761005	VM_MW01_260314	VM_MW01	26/03/2014	1.92	1296	65.1	5.15	23.7
ES1406761004	VM_MW03_260314	VM_MW03	26/03/2014	0.64	3973	-37.9	6.03	25.2
ES1407204004	VM_MW04	VM_MW04	31/03/2014	43.15	895	45.1	5.08	24.3
ES1406590001	VN_MW01_250314	VN_MW01	25/03/2014	4.29	291.5	299	5.3	20.1
ES1406590002	VN_MW02_250314	VN_MW02	25/03/2014	5.24	207.2	258.6	5.78	23.2
ES1406496002	VN_MW03_230314	VN_MW03	23/03/2014	1.54	1000	139.3	6.19	20.7
ES1406496010	VN_MW05_230314	VN_MW05	23/03/2014	0.52	182	337.4	4.48	20
ES1406496008	VN_MW06_230314	VN_MW06	23/03/2014	1.33	498.1	17	6.6	19.6
ES1406496007	VN_MW07_230314	VN_MW07	23/03/2014	0.79	458.5	58.9	5.63	19.5
ES1406496004	VN_MW08_230314	VN_MW08	23/03/2014	0.84	333.2	215.2	5.69	22.5
ES1406496005	VN_MW09_230314	VN_MW09	23/03/2014	1.53	172.3	269.7	4.92	20
ES1406496001	VP_MW10	VN_MW10	23/03/2014	4.59	276.5	227.9	5.53	19.7
ES1406496009	VN_MW12_230314	VN_MW12	23/03/2014	1.59	297.9	500.2	3.52	21.7
ES1407204003	VO_MW01	VO_MW01	31/03/2014	47.76	18.24	11.8	4.69	22.3
ES1406590006	VO_MW02_250314	VO_MW02	25/03/2014	0.07	18,900	-44.7	5.66	22.1
ES1406590005	VO_MW03_250314	VO_MW03	25/03/2014	0.01	36,550	4.4	5.37	22.1
ES1406590004	VO_MW04_250314	VO_MW04	25/03/2014	-	33,160	348.5	3.6	21.6
ES1406274001	VO_MW05_210314	VO_MW05	21/03/2014	0.18	13,980	153.1	4.09	21.9
ES1406274002	VO_MW06_210314	VO_MW06	21/03/2014	-	21,920	299.5	3.97	23.1
ES1406274003	VO_MW07_210314	VO_MW07	21/03/2014	4.74	130.5	190.6	5.38	21.1
ES1407204001	VO_MW08	VO_MW08	31/03/2014	77.07	2432	57.3	5.66	20.4
ES1406274004	VO_MW09_210314	VO_MW09	21/03/2014	0.19	3558	317.5	4.47	20.8
ES1406274005	VO_MW10_210314	VO_MW10	21/03/2014	-	788	-81.7	5.74	20.6
ES1406281003	VO_MW11_200314	VO_MW11	20/03/2014	5.22	472.4	157.8	5.52	20.9
ES1406281002	VO_MW12_200314	VO_MW12	20/03/2014	0.09	28,010	131.9	3.99	22.9
ES1406281001	VO_MW13_200314	VO_MW13	20/03/2014	1.73	518	149.3	5.41	22.7
ES1407202002	VO_MW14_310314	VO_MW14	31/03/2014	3.59	413	195.8	5.24	20.1
ES1407202001	VO_MW15_310314	VO_MW15	31/03/2014	1.61	306.5	131.7	5.53	21.5
ES1407202006	VO_MW17_310314	VO_MW17	31/03/2014	0.02	1725	-106.4	6.55	23.2
ES1406761014	VO_MW18_260314	VO_MW18	26/03/2014	0.95	18,400	310.5	3.85	19.5
ES1407202007	VO_MW19_310314	VO_MW19	31/03/2014	2.46	22,120	432.5	3.87	22.8
ES1406274006	VO_MW20_210314	VO_MW20	21/03/2014	0.26	240.8	-8.7	5.31	20.1
ES1407202004	VO_X_MW01	VO_X_MW01	31/03/2014	0	651	49.4	5.25	20.1
ES1407202003	VO_X_MW02	VO_X_MW02	31/03/2014	0.06	22,180	86.9	5.05	22.2
ES1407202005	VO_X_MW03	VO_X_MW03	31/03/2014	0.01	28,320	-5.7	5.16	22.1

SampleCode	Field_ID	LocCode	Sample Date	Field				
				Dissolved Oxygen	EC (field)	ORP	pH (Field)	Temperature
				mg/L	µS/cm	mV	pH_Units	oC
ES1407301006	VP_MW01_010414	VP_MW01	1/04/2014	0.14	727	-257.8	6.42	21.1
ES1407301005	VP_MW02_010414	VP_MW02	1/04/2014	0.41	681	-258.5	5.7	22.2
ES1406761006	VS_MW01_260314	VS_MW01	26/03/2014	3.1	1177	51	5.3	23.8
ES1406761007	VS_MW02_260314	VS_MW02	26/03/2014	1.63	1460	39.6	5.4	24
ES1406761008	VS_MW03_260314	VS_MW03	26/03/2014	0.44	2442	-68.1	6.79	22.7
ES1406761009	VS_MW04_260314	VS_MW04	26/03/2014	0.62	2309	-30.8	6.26	22.8
ES1406907001	VS_MW05_270314	VS_MW05	27/03/2014	0.6	672	-67.3	5.41	25.9
ES1407201003	VT_MW01_310314	VT_MW01	31/03/2014	0.98	363.9	-17.3	4.12	22.1
ES1407201001	VT_MW03B_310314	VT_MW03B	31/03/2014	1.27	1289	99.3	4.09	22.9
ES1407300006	VU_MW01_010414	VU_MW01	1/04/2014	58.87	399.6	-54.8	4.93	21.9
ES1407300007	VU_MW02_010414	VU_MW02	1/04/2014	62.38	1658	113.3	3.25	19.6
ES1407299003	VU_MW03	VU_MW03	1/04/2014	0.42	3240	145	4.41	22
ES1407300002	VU_MW04_010414	VU_MW04	1/04/2014	53.17	91.5	173.9	4.31	21.3
ES1407300001	VU_MW05_010414	VU_MW05	1/04/2014	56.29	582	105.2	4.71	23.3
ES1407300005	VU_MW06_010414	VU_MW06	1/04/2014	60.39	147.6	146.7	4.04	22.6
ES1407300008	VU_MW07_010414	VU_MW07	1/04/2014	46.48	205.7	58.1	4.01	24.3
ES1407299005	VU_MW08	VU_MW08	1/04/2014	0.49	1515	103	6.84	19.4
ES1407301004	VU_MW09_010414	VU_MW09	1/04/2014	1.13	588	-83.3	6.03	20.6
ES1407301002	VU_MW12_010414	VU_MW12	1/04/2014	0.2	1469	-70.8	4.18	20
ES1407201009	VU_MW13_310314	VU_MW13	31/03/2014	4.56	198.8	-2.1	4.75	22.2
ES1407301003	VU_MW14_010414	VU_MW14	1/04/2014	2	173.9	-8.4	4.6	20
ES1407301007	VU_MW15_010414	VU_MW15	1/04/2014	3.37	455.3	-61.5	5.48	21.5
ES1407300010	VU_MW16_010414	VU_MW16	1/04/2014	95.84	592	124.7	3.55	21.4
ES1407300009	VU_MW17_010414	VU_MW17	1/04/2014	77.31	438.9	107.5	3.84	22.3

**Statistical Summary**

Number of Results	111	118	118	118	118
Minimum Concentration	0	18.24	-258.5	3.25	19.4
Maximum Concentration	95.84	36550	1948	6.84	28.3



Table 4a. Soil Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>		240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																				160 <sup>#1</sup>		670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>		25 <sup>#1</sup>	230 <sup>#1</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300			75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600			95	185	135				95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	2	18
ES1405227009	VA_MW05_0.1	VA_MW05	0-0.2	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	2	18
ES1405227011	VA_SB03_0.5	VA_SB03	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	16	6	6	<0.1	<2	<5
ES1405227013	VA_MW04_1.0	VA_MW04	0.9-1.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	5	<0.1	<2	<5
ES1405227014	D01_100314_GP	VA_MW04	0.9-1.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	6	6	<0.1	2	9
ES1405362002	VA_MW06_0.5	VA_MW06	0.4-0.6	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	21	<5	<0.1	17	56
ES1405362004	VA_MW03_1.0	VA_MW03	0.9-1.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	10	<5	<0.1	3	33
ES1405362005	VA_MW02_0.1	VA_MW02	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	41	50	<0.1	9	518
ES1405362007	VA_SB02_0.5	VA_SB02	0.4-0.6	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	24	7	<0.1	5	34
ES1405362008	VA_SB02_1.0	VA_SB02	0.9-1.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	33	8	<0.1	5	28
ES1405362026	VA_MW05_6.0	VA_MW05	5.9-6.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	14	18	<5	<0.1	4	21
ES1405362027	VA_SB03_3.0	VA_SB03	2.9-3.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1405362028	VA_MW04_2.0	VA_MW04	1.9-2.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	15	6	<0.1	6	23
ES1405525027	VA_MW06_1.8	VA_MW06	1.7-1.9	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	14	6	<0.1	2	14
ES1405525028	VA_MW03_3.0	VA_MW03	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	27	17	5	<0.1	14	43
ES1405660034	VA_MW01_0.5	VA_MW01	0.4-0.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	20	6	<0.1	7	46
ES1405876001	VA_MW02_2.0	VA_MW02	1.9-2.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	15	26	10	<0.1	26	106
ES1405879012	VA_SB01_0.25	VA_SB01	0.15-0.35	17/03/2014	<10	<50	530	280	810	<10	<10	180	170	580	280	1040	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	13	5	<0.1	9	48
ES1405879013	VA_SB01_0.8	VA_SB01	0.7-0.9	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	<5	<5	<0.1	<2	44

Statistical Summary

Number of Results	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Number of Detects	0	0	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
Maximum Concentration	<10	<50	530	280	810	<10	<10	180	170	580	280	1040	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	27	41	50	<0.1	26	518
Average Concentration	5	25	77	63	69	5	5	34	33	79	63	81	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	9.1	15	7.5	0.05	6.4	58
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	8	14.5	5.5	0.05	4.5	30.5
Standard Deviation	0	0	113	54	185	0	0	37	34	125	54	239	0	0	0	0	0	0	0	0	0	0	0	0	6	11	11	0	6.7	117
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial







Table 4a. Soil Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																										VOCs								
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5			
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																			
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																			
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																			
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																			
Human Health - Intrusive - Vapour Intrusion 0-<2m																																			
Human Health - Intrusive - Vapour Intrusion 2-<4m																																			
Human Health - Intrusive - Vapour Intrusion + 4m																																			
Human Health - Intrusive - Direct Contact																																			
Human Health - Direct Contact - HIL-D																																			
NEPM (2013) EIL - Commercial/Industrial (Aged)																																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																			
NEPM (2013) ESL - Commercial & Industrial (Fine)																																			

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	
ES1405227009	VA_MW05_0.1	VA_MW05	0-0.2	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405227011	VA_SB03_0.5	VA_SB03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405227013	VA_MW04_1.0	VA_MW04	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405227014	DO1_100314_GP	VA_MW04	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362002	VA_MW06_0.5	VA_MW06	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362004	VA_MW03_1.0	VA_MW03	0.9-1.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362005	VA_MW02_0.1	VA_MW02	0-0.2	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362007	VA_SB02_0.5	VA_SB02	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362008	VA_SB02_1.0	VA_SB02	0.9-1.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362026	VA_MW05_6.0	VA_MW05	5.9-6.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362027	VA_SB03_3.0	VA_SB03	2.9-3.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405362028	VA_MW04_2.0	VA_MW04	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525027	VA_MW06_1.8	VA_MW06	1.7-1.9	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525028	VA_MW03_3.0	VA_MW03	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660034	VA_MW01_0.5	VA_MW01	0.4-0.6	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405876001	VA_MW02_2.0	VA_MW02	1.9-2.1	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879012	VA_SB01_0.25	VA_SB01	0.15-0.35	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879013	VA_SB01_0.8	VA_SB01	0.7-0.9	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistical Summary

Number of Results	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Average Concentration	0.25	0.25	0																																		



Table 4a. Soil Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	MAH									Halogenated Benzenes									Halogenated Hydrocarbons					Solvents					Polychlorinated Biphenyls	PFOS/PFOA			
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	Perfluorooctanoate	6:2 Fluorotelomer Sulfonate (6:2 FTS)	PFOS	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5	5	5	5	5	5	5	0.1	0.0005	0.005	0.0005		
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																	
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																	
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																	
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																	
Human Health - Intrusive - Vapour Intrusion 0-<2m																																	
Human Health - Intrusive - Vapour Intrusion 2-<4m																																	
Human Health - Intrusive - Vapour Intrusion + 4m																																	
Human Health - Intrusive - Direct Contact																																	
Human Health - Direct Contact - HIL-D																													7 <sup>#11</sup>				
NEPM (2013) EIL - Commercial/Industrial (Aged)																															16 <sup>#12</sup>	6 <sup>#12</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																	
NEPM (2013) ESL - Commercial & Industrial (Fine)																																	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0.0007	<0.005	0.0176
ES1405227009	VA_MW05_0.1	VA_MW05	0-0.2	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0.0007	<0.005	0.0176	
ES1405227011	VA_SB03_0.5	VA_SB03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405227013	VA_MW04_1.0	VA_MW04	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405227014	DO1_100314_GP	VA_MW04	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-		
ES1405362002	VA_MW06_0.5	VA_MW06	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405362004	VA_MW03_1.0	VA_MW03	0.9-1.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405362005	VA_MW02_0.1	VA_MW02	0-0.2	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	0.0026		
ES1405362007	VA_SB02_0.5	VA_SB02	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405362008	VA_SB02_1.0	VA_SB02	0.9-1.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405362026	VA_MW05_6.0	VA_MW05	5.9-6.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405362027	VA_SB03_3.0	VA_SB03	2.9-3.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405362028	VA_MW04_2.0	VA_MW04	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405525027	VA_MW06_1.8	VA_MW06	1.7-1.9	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405525028	VA_MW03_3.0	VA_MW03	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405660034	VA_MW01_0.5	VA_MW01	0.4-0.6	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405876001	VA_MW02_2.0	VA_MW02	1.9-2.1	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		
ES1405879012	VA_SB01_0.25	VA_SB01	0.15-0.35	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
ES1405879013	VA_SB01_0.8	VA_SB01	0.7-0.9	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-		

Statistical Summary	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	9	9	9
Number of Results	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	9	9	9	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005		
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0.0007	<0.005	0.0176		
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.0003	0.0025	0.0024		
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.00025	0.0025	0.00025		
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00015	0	0.0057		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

	TRH										BTEX							Metals									
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	50	100	100	50	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND						260 <sup>#9</sup>		NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND						370 <sup>#8</sup>		NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND						630 <sup>#7</sup>		NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND						NL <sup>#10</sup>		NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m						NL <sup>#3</sup>		NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m						NL <sup>#2</sup>		NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m						NL <sup>#4</sup>		NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact						82000 <sup>#5</sup>		62000 <sup>#5</sup>		85000 <sup>#5</sup>	120000 <sup>#5</sup>	1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>									
Human Health - Direct Contact - HIL-D						26000 <sup>#6</sup>		20000 <sup>#6</sup>		27000 <sup>#6</sup>	38000 <sup>#6</sup>	430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>		3000 <sup>#11</sup>	900 <sup>#11</sup>		24000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	40000 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																											
NEPM (2013) ESL - Commercial & Industrial (Coarse)						215		170		1700	3300	75	165	135				180									
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600	95	185	135				95									

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	12	8	<0.1	10	31	
ES1405526002	VB_MW03_0.5	VB_MW03	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
ES1405674001	VB_MW03_3.9	VB_MW03	3.8-4	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
ES1405674002	VB_MW03_1.5	VB_MW03	1.4-1.6	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1405739004	VB_MW01_0.5	VB_MW01	0.4-0.6	14/03/2014	<10	490	2350	<100	2840	10	10	1190	1690	<100	2880	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	20	8	<0.1	16	36	
ES1405739006	VB_MW02_0.5	VB_MW02	0.4-0.6	14/03/2014	<10	<50	180	<100	180	<10	<10	60	60	190	<100	250	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	7	<5	<0.1	3	12
ES1405739009	D02_140314NO	VB_MW01	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	14	<5	<0.1	6	22	
ES1405739011	VB_MW01_2.0	VB_MW01	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	17	5	<0.1	5	22	
ES1405962002	VB_MW02_3.0	VB_MW02	2.9-3.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	5	5	<0.1	<2	<5	
ES1405963009	VB_SB01_0.5	VB_SB01	0.4-0.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	13	6	<0.1	5	22	
ES1406278009	VB_MW05_1.0	VB_MW05	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	21	8	<0.1	20	55	
ES1406590031	VB_MW05_2.0	VB_MW05	1.9-2.1	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	<5	<5	<0.1	2	<5	
ES1406762011	VB_SB01_1.5	VB_SB01	1.4-1.6	27/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
ES1406762012	VB_SB01_2.7	VB_SB01	2.6-2.8	27/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5	

Statistical Summary

Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	1	2	0	2	1	1	2	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	11	8	6	0	8	7
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<100	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
Maximum Concentration	<10	490	2350	<100	2840	10	10	1190	1190	1690	<100	2880	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	21	8	<0.1	20	55
Average Concentration	5	64	253	50	273	5.4	5.4	125	125	198	50	282	0.1	0.25	0.25	0.1	0.25	0.25	0.25	0.25	0.25	2.5	0.5	6.1	9.9	4.6	0.05	5.9	18	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	0.25	0.25	2.5	0.5	7	9.5	3.75	0.05	4	17	
Standard Deviation	0	134	662	0	810	1.4	1.4	336	336	471	0	821	0	0	0	0	0	0	0	0	0	0	0	3.1	7.1	2.4	0	6.3	17	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial







	Halogenated Benzenes									Halogenated Hydrocarbons					Solvents				Polychlorinated Biphenyls	PFOS/PFOA			
	m,p,2,3-trichlorobenzene	m,p,2,4-trichlorobenzene	m,p,2-dichlorobenzene	m,p,3-dichlorobenzene	m,p,4-dichlorobenzene	p-chlorotoluene	m-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	Perfluorooctanoate	6:2 Fluorotelomer Sulfonate (6:2 FTS)	PFOS
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5	5	5	5	5	0.5	5	0.1	0.0005	0.005	0.0005	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																							
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																							
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																							
Human Health - HSL-D - Vapour Intrusion + 4m SAND																							
Human Health - Intrusive - Vapour Intrusion 0-<2m																							
Human Health - Intrusive - Vapour Intrusion 2-<4m																							
Human Health - Intrusive - Vapour Intrusion + 4m																							
Human Health - Intrusive - Direct Contact																							
Human Health - Direct Contact - HIL-D																				7 <sup>#11</sup>			
NEPM (2013) EIL - Commercial/Industrial (Aged)																						16 <sup>#12</sup>	6 <sup>#12</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)																							
NEPM (2013) ESL - Commercial & Industrial (Fine)																							

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405526002	VB_MW03_0.5	VB_MW03	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405674001	VB_MW03_3.9	VB_MW03	3.8-4	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405674002	VB_MW03_1.5	VB_MW03	1.4-1.6	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.005	<0.0005
ES1405739004	VB_MW01_0.5	VB_MW01	0.4-0.6	14/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005
ES1405739006	VB_MW02_0.5	VB_MW02	0.4-0.6	14/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005
ES1405739009	D02_140314NO	VB_MW01	1.9-2.1	14/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405739011	VB_MW01_2.0	VB_MW01	1.9-2.1	14/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405962002	VB_MW02_3.0	VB_MW02	2.9-3.1	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1405963009	VB_SB01_0.5	VB_SB01	0.4-0.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	0.0006
ES1406278009	VB_MW05_1.0	VB_MW05	0.9-1.1	20/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005
ES1406590031	VB_MW05_2.0	VB_MW05	1.9-2.1	25/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1406762011	VB_SB01_1.5	VB_SB01	1.4-1.6	27/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-
ES1406762012	VB_SB01_2.7	VB_SB01	2.6-2.8	27/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	-

Statistical Summary																								
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	<0.0005
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.0005	<0.005	0.0006
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.00025	0.0025	0.00032
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.00025	0.0025	0.00025
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00016
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments**
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	0.4	1	1	1	0.1	1	1
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND						260 <sup>#9</sup>	NL <sup>#9</sup>						3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND						370 <sup>#8</sup>	NL <sup>#8</sup>						3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND						630 <sup>#7</sup>	NL <sup>#7</sup>						3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND						NL <sup>#10</sup>	NL <sup>#10</sup>						3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m						NL <sup>#3</sup>	NL <sup>#3</sup>						77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m						NL <sup>#2</sup>	NL <sup>#2</sup>						160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m						NL <sup>#4</sup>	NL <sup>#4</sup>						NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact						82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D						26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>				430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>	240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)																				160 <sup>#1</sup>		670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>	730 <sup>#1</sup>	25 <sup>#1</sup>	230 <sup>#1</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)						215	170	1700	3300				75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)								2500	6600				95	185	135				95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	6	2	5	<0.1	1	11
I07628-1	T01-310314-GP	VC_MW03	0-0.2	31/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	6	2	5	<0.1	1	11
ES1405525002	VC_MW05_1.0	VC_MW05	0.9-1.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	17	7	<0.1	9	34
ES1405525003	VC_MW02_0.5	VC_MW02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	24	8	<0.1	21	51
ES1405525004	D01_120314_GP	VC_MW02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	8	<5	<0.1	4	11
ES1405525026	VC_MW04_0.5	VC_MW04	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	6	<5	<0.1	3	13
ES1405525029	VC_MW02_3.0	VC_MW02	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	<2	<5
ES1405525030	VC_MW05_3.0	VC_MW05	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	8	5	<0.1	<2	8
ES1405525031	VC_MW04_3.0	VC_MW04	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7	<1	17	5	5	<0.1	<2	5
ES1405963012	VC_MW01_0.5	VC_MW01	0.4-0.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	12	<5	<0.1	11	37
ES1406139002	VC_MW01_4.0	VC_MW01	3.9-4.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	6	<5	<0.1	<2	<5
ES1407203005	VC_SB03_0.1	VC_SB03	0-0.2	31/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	12	49	12	<0.1	16	189
ES1407203006	VC_MW03_0.1	VC_MW03	0-0.2	31/03/2014	<10	<50	970	830	1800	<10	<10	<50	<50	1610	460	2070	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	18	8	<0.1	7	152
ES1407203007	D01_310314_GP	VC_MW03	0-0.2	31/03/2014	<10	<50	1020	890	1910	<10	<10	<50	<50	1700	480	2180	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	12	14	<0.1	4	198

Statistical Summary	13	13	13	13	12	13	13	13	13	13	13	12	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Number of Results	13	13	13	13	12	13	13	13	13	13	13	12	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13		
Number of Detects	0	0	2	2	2	0	0	0	0	0	2	2	2	0	0	0	0	0	0	0	1	0	13	12	8	0	9	11		
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<4	<0.4	4	2	<5	<0.1	1	<5			
Maximum Concentration	<25	<50	1020	890	1910	<25	<25	<50	<50	1700	480	2180	<0.2	<1	<0.5	<0.2	<2	<1	<3	7	<1	17	49	14	<0.1	21	198			
Average Concentration	5.6	25	195	175	330	5.6	5.6	25	25	297	115	375	0.1	0.27	0.25	0.1	0.31	0.27	0.35	2.8	0.48	7.9	13	5.9	0.05	6.2	55			
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	7	8	5	0.05	4	13			
Standard Deviation	2.1	0	355	304	713	2.1	2.1	0	0	603	158	818	0	0.069	0	0	0.21	0.069	0.35	1.3	0.083	3.9	13	3.8	0	6.5	73			
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
  - #12 US EPA (2009) Residential screening levels for soil



Table 4c. Soil Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols																		
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(e)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total		
EQL	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5				
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND											NL <sup>#9</sup>																									
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND											NL <sup>#8</sup>																									
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND											NL <sup>#7</sup>																									
Human Health - HSL-D - Vapour Intrusion + 4m SAND											NL <sup>#10</sup>																									
Human Health - Intrusive - Vapour Intrusion 0-<2m											NI <sup>#3</sup>																									
Human Health - Intrusive - Vapour Intrusion 2-<4m											NL <sup>#2</sup>																									
Human Health - Intrusive - Vapour Intrusion + 4m											NL <sup>#4</sup>																									
Human Health - Intrusive - Direct Contact											2900 <sup>#5</sup>																									
Human Health - Direct Contact - HIL-D											11000 <sup>#6</sup>									4000 <sup>#11</sup>	40 <sup>#11</sup>											660 <sup>#11</sup>	24000 <sup>#11</sup>			
NEPM (2013) EIL - Commercial/Industrial (Aged)											370 <sup>#1</sup>																									
NEPM (2013) ESL - Commercial & Industrial (Coarse)					1.4																															
NEPM (2013) ESL - Commercial & Industrial (Fine)					1.4																															

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-	-	-	-	-	-	-	-	-	-	-	<5
I07628-1	T01-310314-GP	VC_MW03	0-0.2	31/03/2014	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-	-	-	-	-	-	-	-	-	-	-	<5
ES1405525002	VC_MW05_1.0	VC_MW05	0.9-1.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525003	VC_MW02_0.5	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525004	D01_120314_GP	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525026	VC_MW04_0.5	VC_MW04	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525029	VC_MW02_3.0	VC_MW02	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525030	VC_MW05_3.0	VC_MW05	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405525031	VC_MW04_3.0	VC_MW04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1405963012	VC_MW01_0.5	VC_MW01	0.4-0.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1406139002	VC_MW01_4.0	VC_MW01	3.9-4.1	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1407203005	VC_SB03_0.1	VC_SB03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1407203006	VC_MW03_0.1	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
ES1407203007	D01_310314_GP	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-

Statistical Summary	13	13	13	13	13	1	12	13	12	12	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	1
Number of Results	13	13	13	13	13	1	12	13	12	12	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	1	
Number of Detects	0	0	0	0	0	0	0	0	0	12	12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.5	<0.1	<0.5	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Average Concentration	0.23	0.23	0.23	0.23	0.23		0.25	0.23	0.25	0.6	1.1	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.1	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Standard Deviation	0.055	0.055	0.055	0.055	0.062		0	0.055	0	0	0.26	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.069	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
  - #12 US EPA (2009) Residential screening levels for soil



Table 4c. Soil Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																												VOCs						
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5			
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																			
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																			
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																			
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																			
Human Health - Intrusive - Vapour Intrusion 0-<2m																																			
Human Health - Intrusive - Vapour Intrusion 2-<4m																																			
Human Health - Intrusive - Vapour Intrusion + 4m																																			
Human Health - Intrusive - Direct Contact																																			
Human Health - Direct Contact - HIL-D																																			
NEPM (2013) EIL - Commercial/Industrial (Aged)																																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																			
NEPM (2013) ESL - Commercial & Industrial (Fine)																																			

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date																															
107628-1	T01-310314-GP	VC_MW03	0-0.2	31/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1405525002	VC_MW05_1.0	VC_MW05	0.9-1.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525003	VC_MW02_0.5	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525004	D01_120314_GP	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525026	VC_MW04_0.5	VC_MW04	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525029	VC_MW02_3.0	VC_MW02	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525030	VC_MW05_3.0	VC_MW05	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525031	VC_MW04_3.0	VC_MW04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405963012	VC_MW01_0.5	VC_MW01	0.4-0.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1406139002	VC_MW01_4.0	VC_MW01	3.9-4.1	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203005	VC_SB03_0.1	VC_SB03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203006	VC_MW03_0.1	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203007	D01_310314_GP	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		

Statistical Summary																																		
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
- #12 US EPA (2009) Residential screening levels for soil



Table 4c. Soil Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	MAH									Halogenated Benzenes									Halogenated Hydrocarbons					Solvents					Polychlorinated Biphenyls	PFOS/PFOA			
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	Perfluorooctanoate	6:2 Fluorotelomer Sulfonate (6:2 FTS)	PFOS	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	0.5	5	5	5	5	5	5	0.1	0.0005	0.005	0.0005	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																	
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																	
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																	
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																	
Human Health - Intrusive - Vapour Intrusion 0-<2m																																	
Human Health - Intrusive - Vapour Intrusion 2-<4m																																	
Human Health - Intrusive - Vapour Intrusion + 4m																																	
Human Health - Intrusive - Direct Contact																																	
Human Health - Direct Contact - HIL-D																													7 <sup>#11</sup>				
NEPM (2013) EIL - Commercial/Industrial (Aged)																														16 <sup>#12</sup>	6 <sup>#12</sup>		
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																	
NEPM (2013) ESL - Commercial & Industrial (Fine)																																	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date																														
107628-1	T01-310314-GP	VC_MW03	0-0.2	31/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1405525002	VC_MW05_1.0	VC_MW05	0.9-1.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525003	VC_MW02_0.5	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525004	D01_120314_GP	VC_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525026	VC_MW04_0.5	VC_MW04	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525029	VC_MW02_3.0	VC_MW02	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525030	VC_MW05_3.0	VC_MW05	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405525031	VC_MW04_3.0	VC_MW04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1405963012	VC_MW01_0.5	VC_MW01	0.4-0.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1406139002	VC_MW01_4.0	VC_MW01	3.9-4.1	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203005	VC_SB03_0.1	VC_SB03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203006	VC_MW03_0.1	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ES1407203007	D01_310314_GP	VC_MW03	0-0.2	31/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		

Statistical Summary	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
  - #12 US EPA (2009) Residential screening levels for soil





Table 4d. Soil Summary - AEC VD  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>									
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>		240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)																											
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300		75	165	135				180	160 <sup>#1</sup>	670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>		25 <sup>#1</sup>	230 <sup>#1</sup>		
NEPM (2013) ESL - Commercial & Industrial (Fine)												95	185	135				95									

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	15	7	<0.1	13	53
ES1405526004	VD_MW04_0.5	VD_MW04	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	15	7	<0.1	13	53
ES1405526006	VD_MW01_0.5	VD_MW01	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1405526008	VD_MW02_0.5	VD_MW02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	5
ES1405526010	VD_SB02_0.5	VD_SB02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	12	<5	<0.1	<2	<5
ES1405526012	VD_MW03_0.5	VD_MW03	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	8	<5	<0.1	<2	<5
ES1405526014	VD_SB01_0.5	VD_SB01	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
ES1405660017	VD_MW04_2.0	VD_MW04	1.9-2.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	12	<5	<5	<0.1	<2	<5
ES1405660018	VD_MW01_3.0	VD_MW01	2.9-3.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1405660019	VD_MW02-3.0	VD_MW02	2.9-3.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	18	6	<0.1	5	22
ES1405660020	VD_SB02-2.0	VD_SB02	1.9-2.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1405660022	D01_130314_CM	VD_MW03	1.9-2.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	5	<0.1	<2	<5
ES1405660023	VD_MW03_2.0	VD_MW03	1.9-2.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	<5
ES1405879003	VD_MW05_0.1	VD_MW05	0-0.2	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	16	6	<0.1	15	41
ES1405879004	VD_MW05_1.0	VD_MW05	0.9-1.1	17/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406139001	VD_MW05_5.0	VD_MW05	4.9-5.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5

Statistical Summary

Number of Results	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	5	4	0	3	4	
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
Maximum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	12	18	7	<0.1	15	53	
Average Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	6.4	6.5	3.5	0.05	3.1	10	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	6	2.5	2.5	0.05	1	2.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.8	6	1.7	0	4.7	16	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial





	Halogenated Benzenes								Halogenated Hydrocarbons						Solvents				PFOS/PFOA			
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	Perfluorooctanoate	6:2 Fluorotelomer Sulfonate (6:2 FtS)	PFOS
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	0.5	5	5	5	5	0.5	5	0.0005	0.005	0.0005	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																						
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																						
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																						
Human Health - HSL-D - Vapour Intrusion + 4m SAND																						
Human Health - Intrusive - Vapour Intrusion 0-<2m																						
Human Health - Intrusive - Vapour Intrusion 2-<4m																						
Human Health - Intrusive - Vapour Intrusion + 4m																						
Human Health - Intrusive - Direct Contact																						
Human Health - Direct Contact - HIL-D																						
NEPM (2013) EIL - Commercial/Industrial (Aged)																					16 <sup>#12</sup>	6 <sup>#12</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)																						
NEPM (2013) ESL - Commercial & Industrial (Fine)																						

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526004	VD_MW04_0.5	VD_MW04	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526006	VD_MW01_0.5	VD_MW01	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526008	VD_MW02_0.5	VD_MW02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526010	VD_SB02_0.5	VD_SB02	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526012	VD_MW03_0.5	VD_MW03	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405526014	VD_SB01_0.5	VD_SB01	0.4-0.6	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660017	VD_MW04_2.0	VD_MW04	1.9-2.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660018	VD_MW01_3.0	VD_MW01	2.9-3.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660019	VD_MW02-3.0	VD_MW02	2.9-3.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660020	VD_SB02-2.0	VD_SB02	1.9-2.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660022	D01_130314_CM	VD_MW03	1.9-2.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660023	VD_MW03_2.0	VD_MW03	1.9-2.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879003	VD_MW05_0.1	VD_MW05	0-0.2	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879004	VD_MW05_1.0	VD_MW05	0.9-1.1	17/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.005	<0.0005
ES1406139001	VD_MW05_5.0	VD_MW05	4.9-5.1	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistical Summary																						
Number of Results	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.0005	<0.005	<0.0005
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.0005	<0.005	<0.0005
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	2.5	0.25	2.5	2.5	2.5	2.5	2.5	0.25	2.5	0.00025	0.0025
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	2.5	0.25	2.5	2.5	2.5	2.5	2.5	0.25	2.5	0.00025	0.0025
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments**
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

	TRH											BTEX							
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>				3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>					230 <sup>#9</sup>
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>				3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>					NL <sup>#8</sup>
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>				3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>					NL <sup>#7</sup>
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>				3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>					NL <sup>#10</sup>
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>				77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>					NL <sup>#3</sup>
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>				160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>					NL <sup>#2</sup>
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>					130000 <sup>#5</sup>
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>					81000 <sup>#6</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300		75	165	135					180
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600		95	185	135					95

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1407203004	VE_MW01_0.1	VE_MW01	0-0.2	31/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405227003	VE_MW02_0.1	VE_MW02	0-0.2	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405227004	VE_MW02_1.4	VE_MW02	1.3-1.5	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405879009	VE_MW03_0.2	VE_MW03	0.1-0.3	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405879010	VE_MW03_1.5	VE_MW03	1.4-1.6	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405227001	VE_SB01_0.5	VE_SB01	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405961001	VE_SB01_2.7	VE_SB01	2.6-2.8	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5

**Statistical Summary**

Number of Results	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Maximum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Average Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

**Comments**

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial





Table 4e. Soil Summary - AEC VE  
Vales Point Power Station  
Project Symphony - 0237747

	Metals																	PAH																						
	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
EQL	5	10	1	50	1	2	2	5	5	5	0.1	2	2	5	5	5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																								
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																								
Human Health - Intrusive - Vapour Intrusion 0-<2m																																								
Human Health - Intrusive - Vapour Intrusion 2-<4m																																								
Human Health - Intrusive - Vapour Intrusion + 4m																																								
Human Health - Intrusive - Direct Contact																																								
Human Health - Direct Contact - HIL-D	3000 <sup>#11</sup>				900 <sup>#11</sup>			24000 <sup>#11</sup>	1500 <sup>#11</sup>		730 <sup>#11</sup>		6000 <sup>#11</sup>	10000 <sup>#11</sup>			40000 <sup>#11</sup>																							
NEPM (2013) EIL - Commercial/Industrial (Aged)	160 <sup>#1</sup>					670 <sup>#1</sup>		75 <sup>#1</sup>	1800 <sup>#1</sup>				25 <sup>#1</sup>				230 <sup>#1</sup>																					4000 <sup>#11</sup>	40 <sup>#11</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																								
NEPM (2013) ESL - Commercial & Industrial (Fine)																																								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)		
ES1407203004	VE_MW01_0.1	VE_MW01	0-0.2	31/03/2014	<5	-	-	-	<1	11	-	14	10	-	<0.1	-	6	-	-	-	130	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405227003	VE_MW02_0.1	VE_MW02	0-0.2	10/03/2014	<5	-	-	-	<1	5	-	12	9	-	<0.1	-	2	-	-	-	65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227004	VE_MW02_1.4	VE_MW02	1.3-1.5	10/03/2014	<5	-	-	-	<1	7	-	<5	<5	-	<0.1	-	<2	-	-	-	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879009	VE_MW03_0.2	VE_MW03	0.1-0.3	17/03/2014	12	-	-	-	<1	10	-	22	12	-	<0.1	-	11	-	-	-	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879010	VE_MW03_1.5	VE_MW03	1.4-1.6	17/03/2014	16	-	-	-	<1	14	-	27	14	-	<0.1	-	16	-	-	-	87	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227001	VE_SB01_0.5	VE_SB01	0.4-0.6	10/03/2014	<5	-	-	-	<1	7	-	7	<5	-	<0.1	-	2	-	-	-	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405961001	VE_SB01_2.7	VE_SB01	2.6-2.8	18/03/2014	<5	10	<1	<50	<1	8	<2	8	6	16	<0.1	<2	2	<5	<5	22	19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	

Statistical Summary	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)				
Number of Results	7	1	1	1	7	7	1	7	7	1	7	1	7	1	1	1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Number of Detects	2	1	0	0	7	0	6	5	1	0	6	0	0	0	1	7	7	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	10	<1	<50	<1	5	<2	<5	<5	16	<0.1	<2	<2	<5	<5	22	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	16	10	<1	<50	<1	14	<2	27	14	16	<0.1	<2	16	<5	<5	22	130	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Average Concentration	5.8				0.5	8.9		13	8		0.05		5.7				56	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration	2.5	10	0.5	25	0.5	8	1	12	9	16	0.05	1	2	2.5	2.5	22	65	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	5.7				0	3		8.7	4.5		0		5.7				45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial







Table 4f. Soil Summary - AEC VF  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C37-C40 Fraction	TRH >C41-C44 Fraction	TRH >C45-C48 Fraction	TRH >C49-C52 Fraction	TRH >C53-C56 Fraction	TRH >C57-C60 Fraction	TRH >C61-C64 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylenes (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	0.4	1	1	1	0.1	1	1
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND									260 <sup>#9</sup>				3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND									370 <sup>#8</sup>				3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND									630 <sup>#7</sup>				3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND									NL <sup>#10</sup>				3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m									NL <sup>#3</sup>				77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m									NL <sup>#2</sup>				160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m									NL <sup>#4</sup>				1100 <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact									82000 <sup>#5</sup>				62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D									26000 <sup>#6</sup>				20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>				81000 <sup>#6</sup>								
NEPM (2013) EIL - Commercial/Industrial (Aged)																			3000 <sup>#11</sup>	900 <sup>#11</sup>		240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)									215				170	1700	3300				180			160 <sup>#1</sup>	670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>	25 <sup>#1</sup>	230 <sup>#1</sup>
NEPM (2013) ESL - Commercial & Industrial (Fine)													2500	6600					95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	6	6	<0.1	<2	<5
ES1405227006	VF_MW01_1.0	VF_MW01	0.9-1.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	6	6	<0.1	<2	<5
ES1405362025	VF_MW01_4.0	VF_MW01	3.9-4.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	5	<0.1	<2	<5
106434-2	T01_100314_GP	VF_MW02	0-0.2	10/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	4	0.6	23	47	50	<0.1	18	460
ES1405227007	VF_MW02_0.1	VF_MW02	0-0.2	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	22	39	52	<0.1	19	458
ES1405362010	VF_MW02_2.0	VF_MW02	1.9-2.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	9	<1	10	<5	8	<0.1	2	6
ES1405227005	VF_MW03_0.5	VF_MW03	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	8	8	<0.1	4	18
ES1405362024	VF_MW03_2.0	VF_MW03	1.9-2.1	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	8	<0.1	<2	<5

Statistical Summary

Number of Results	7	7	7	7	6	7	7	7	7	7	7	6	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	7	4	6	0	4	4
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4	0.6	4	<5	<5	<0.1	<2	<5	
Maximum Concentration	<25	<50	<100	<100	<50	<25	<25	<50	<50	<100	<100	<50	<0.2	<1	<0.5	<0.2	<2	<1	<3	9	<1	23	47	52	<0.1	19	460				
Average Concentration	6.1	25	50	50	25	6.1	6.1	25	25	50	50	25	0.1	0.29	0.25	0.1	0.36	0.29	0.43	3.6	0.51	12	15	19	0.05	6.6	136				
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	10	6	8	0.05	2	6				
Standard Deviation	2.8	0	0	0	0	2.8	2.8	0	0	0	0	0	0	0.094	0	0	0.28	0.094	0.47	2.4	0.038	7.5	19	22	0	8.2	221				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial





	Chlorinated Hydrocarbons																											VOCs								
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,1,2-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene			
EQI	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																				
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																				
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																				
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																				
Human Health - Intrusive - Vapour Intrusion 0-<2m																																				
Human Health - Intrusive - Vapour Intrusion 2-<4m																																				
Human Health - Intrusive - Vapour Intrusion + 4m																																				
Human Health - Intrusive - Direct Contact																																				
Human Health - Direct Contact - HIL-D																																				
NEPM (2013) EIL - Commercial/Industrial (Aged)																																				
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																				
NEPM (2013) ESL - Commercial & Industrial (Fine)																																				

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,1,2-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	
ES1405227006	VF_MW01_1.0	VF_MW01	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362025	VF_MW01_4.0	VF_MW01	3.9-4.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
106434-2	T01_100314_GP	VF_MW02	0-0.2	10/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1405227007	VF_MW02_0.1	VF_MW02	0-0.2	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362010	VF_MW02_2.0	VF_MW02	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227005	VF_MW03_0.5	VF_MW03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362024	VF_MW03_2.0	VF_MW03	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistical Summary

Number of Results	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Average Concentration	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



Table 4f. Soil Summary - AEC VF  
Vales Point Power Station  
Project Symphony - 0237747

	MAH									Halogenated Benzenes								Halogenated Hydrocarbons					Solvents							
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	0.5	1	5	5	5	0.5		5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																														
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																														
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																														
Human Health - HSL-D - Vapour Intrusion + 4m SAND																														
Human Health - Intrusive - Vapour Intrusion 0-<2m																														
Human Health - Intrusive - Vapour Intrusion 2-<4m																														
Human Health - Intrusive - Vapour Intrusion + 4m																														
Human Health - Intrusive - Direct Contact																														
Human Health - Direct Contact - HIL-D																														
NEPM (2013) EIL - Commercial/Industrial (Aged)																														
NEPM (2013) ESL - Commercial & Industrial (Coarse)																														
NEPM (2013) ESL - Commercial & Industrial (Fine)																														

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate	
ES1405227006	VF_MW01_1.0	VF_MW01	0.9-1.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	
ES1405362025	VF_MW01_4.0	VF_MW01	3.9-4.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	
106434-2	T01_100314_GP	VF_MW02	0-0.2	10/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	-	-	-	-	<1	-		
ES1405227007	VF_MW02_0.1	VF_MW02	0-0.2	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	
ES1405362010	VF_MW02_2.0	VF_MW02	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
ES1405227005	VF_MW03_0.5	VF_MW03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
ES1405362024	VF_MW03_2.0	VF_MW03	1.9-2.1	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	

Statistical Summary

Number of Results	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	6	6	6	6	1	6				
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Average Concentration	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Standard Deviation	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

	TRH											BTEX							
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>	120000 <sup>#5</sup>	1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>					130000 <sup>#5</sup>
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>	38000 <sup>#6</sup>	430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>					81000 <sup>#6</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300		75	165	135					180
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600		95	185	135					95

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405362011	VG_MW04_0.2	VG_MW04	0.1-0.3	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405362012	VG_MW03_0.5	VG_MW03	0.4-0.6	11/03/2014	<10	150	420	<100	570	<10	<10	290	290	<100	<100	580	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405961002	VG_MW03_1.0	VG_MW03	0.9-1.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406140017	VG_MW02_1.0	VG_MW02	0.9-1.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406140018	D01_190314_GP	VG_MW02	0.9-1.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406277002	VG_MW04_8.5	VG_MW04	8.4-8.6	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406278001	VG_MW01_0.1	VG_MW01	0-0.2	20/03/2014	<10	<50	420	140	560	<10	<10	70	70	470	<100	540	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406762013	VG_MW01_1.9	VG_MW01	1.8-2	26/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406762014	VG_MW03_1.5	VG_MW03	1.4-1.6	26/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406908003	VG_MW02_3.5	VG_MW02	3.4-3.6	27/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5

Statistical Summary

Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Number of Detects	0	1	2	1	2	0	0	0	2	2	2	0	0	0	2	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Maximum Concentration	<10	150	420	140	570	<10	<10	290	290	470	<100	580	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Average Concentration	5	38	124	59	133	5	5	56	56	116	50	132	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	
Standard Deviation	0	40	156	28	228	0	0	83	83	145	0	226	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial









Table 4g. Soil Summary - AEC VG  
Vales Point Power Station  
Project Symphony - 0237747

	VOCs			MAH									Halogenated Benzenes								Halogenated Hydrocarbons					Solvents						
	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-Dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	0.5	5	5	5	5	5	0.5	5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																
Human Health - Intrusive - Vapour Intrusion 0-<2m																																
Human Health - Intrusive - Vapour Intrusion 2-<4m																																
Human Health - Intrusive - Vapour Intrusion + 4m																																
Human Health - Intrusive - Direct Contact																																
Human Health - Direct Contact - HIL-D																																
NEPM (2013) EIL - Commercial/Industrial (Aged)																																
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																
NEPM (2013) ESL - Commercial & Industrial (Fine)																																

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date																												
ES1405362011	VG_MW04_0.2	VG_MW04	0.1-0.3	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1405362012	VG_MW03_0.5	VG_MW03	0.4-0.6	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1405961002	VG_MW03_1.0	VG_MW03	0.9-1.1	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1406140017	VG_MW02_1.0	VG_MW02	0.9-1.1	19/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406140018	D01_190314_GP	VG_MW02	0.9-1.1	19/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406277002	VG_MW04_8.5	VG_MW04	8.4-8.6	21/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406278001	VG_MW01_0.1	VG_MW01	0-0.2	20/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406762013	VG_MW01_1.9	VG_MW01	1.8-2	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406762014	VG_MW03_1.5	VG_MW03	1.4-1.6	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406908003	VG_MW02_3.5	VG_MW02	3.4-3.6	27/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Statistical Summary																															
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Average Concentration																															
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Standard Deviation																															
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



Table 4i. Soil Summary - AEC VI  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals													
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Calcium	Chromium (III+VI)	Copper	Lead	Magnesium	Mercury	Nickel	Potassium	Zinc	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	10	2	5	5	10	0.1	2	10	5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>												
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>												
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>												
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>												
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>												
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>												
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>												
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>												
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>			240000 <sup>#11</sup>	1500 <sup>#11</sup>		730 <sup>#11</sup>	6000 <sup>#11</sup>		400000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)																				160 <sup>#1</sup>			670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>			25 <sup>#1</sup>		230 <sup>#1</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300			75	165	135				180												
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600		95	185	135				95												

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<10	8	8	6	<10	<0.1	<2	<10	15
ES1405739002	VI_MW01_0.5	VI_MW01	0.4-0.6	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<10	8	8	6	<10	<0.1	<2	<10	15
ES1405739007	VI_MW01_2.0	VI_MW01	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<10	9	14	6	<10	<0.1	8	<10	26
ES1405739008	D01_140314NO	VI_MW01	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<10	8	13	6	<10	<0.1	6	<10	22
ES1406339006	VI_MW02_0.5	VI_MW02	0.4-0.6	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	-	4	<5	<5	<0.1	<2	-	<5	
ES1406339007	VI_MW02_1.7	VI_MW02	1.6-1.8	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	-	5	<5	6	<0.1	2	-	<5	
ES1407203010	VI_SB01_0.1	VI_SB01	0-0.2	31/03/2014	10	<50	240	120	360	12	12	50	50	300	<100	350	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	<1	-	34	57	67	<0.1	13	-	708	

Statistical Summary	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	3	6	6	3	6		
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	3	6	6	3	6			
Number of Detects	1	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	6	4	5	0	0	4	0	4
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<10	4	<5	<10	4	<5	<10	<0.1	<2	<10	<5	
Maximum Concentration	10	<50	240	120	360	12	12	50	50	300	<100	350	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	<1	<10	34	57	67	<10	<0.1	13	<10	708			
Average Concentration	5.8	25	82	62	81	6.2	6.2	29	29	92	50	79	0.1	0.25	0.25	0.1	0.25	0.25	0.25	3.4	0.5	5	11	16	16	5	0.05	5.2	5	129			
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	5	8	10.5	6	5	0.05	4	5	18.5			
Standard Deviation	2	0	78	29	137	2.9	2.9	10	10	102	0	133	0	0	0	0	0	0	0	2.2	0	0	11	21	25	0	0	4.8	0	284			
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		

- Comments
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



	TRH											BTEX							
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>					130000 <sup>#5</sup>
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>					81000 <sup>#6</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300		75	165	135					180
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600		95	185	135					95

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	<50	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3
ES140566006	VJ_MW04_0.2	VJ_MW04	0.1-0.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566008	VJ_SB03_1.4	VJ_SB03	1.3-1.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566010	VJ_MW03_0.5	VJ_MW03	0.4-0.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566011	D01_130314_GP	VJ_MW03	0.4-0.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566012	VJ_SB02_1.0	VJ_SB02	0.9-1.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566013	VJ_MW02_0.5	VJ_MW02	0.4-0.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566014	VJ_SB04_0.15	VJ_SB04	0.05-0.25	13/03/2014	19	<50	<100	<100	<50	24	24	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES140566015	VJ_SB01_1.0	VJ_SB01	0.9-1.1	13/03/2014	45	60	540	190	790	55	55	120	120	630	<100	750	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405736002	VJ_SB03_2.0	VJ_SB03	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405736003	VJ_MW02_4.0	VJ_MW02	3.9-4.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405736004	VJ_SB02_3.0	VJ_SB02	2.9-3.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405736005	VJ_SB04_3.0	VJ_SB04	2.9-3.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405737001	VJ_MV04_5.1	VJ_MV04	5-5.2	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405737003	VJ_MW03_4.0	VJ_MW03	3.9-4.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	2.7	2.7	<0.5	<0.5	<0.5
ES1405737010	VJ_MW03_2.1	VJ_MW03	2-2.2	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738005	VJ_MW08_1.0	VJ_MW08	0.9-1.1	14/03/2014	<10	90	710	280	1080	<10	<10	150	150	840	180	1170	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738006	VJ_MW07_0.1	VJ_MW07	0-0.2	14/03/2014	17	110	860	340	1310	21	21	200	200	1010	160	1370	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738007	VJ_MW09_0.5	VJ_MW09	0.4-0.6	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738008	VJ_MW01_0.2	VJ_MW01	0.1-0.3	14/03/2014	<10	<50	120	<100	120	<10	<10	<50	<50	160	<100	160	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738009	VJ_MW10_1.0	VJ_MW10	0.9-1.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738013	VJ_MW06_0.5	VJ_MW06	0.4-0.6	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405878001	VJ_MW01_5.0	VJ_MW01	4.9-5.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405878002	VJ_MW06_3.0	VJ_MW06	2.9-3.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405878003	VJ_MW07_3.0	VJ_MW07	2.9-3.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405879002	VJ_MW05_1.0	VJ_MW05	0.9-1.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405880002	VJ_MW10_2.8	VJ_MW10	2.7-2.9	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405880003	VJ_MW09_2.0	VJ_MW09	1.9-2.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405880004	VJ_MW08_3.0	VJ_MW08	2.9-3.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406276001	VJ_MW05_4.5	VJ_MW05	4.4-4.6	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5

Statistical Summary																						
Number of Results	30	30	30	30	29	30	30	30	30	30	30	30	30	29	30	30	30	29	30	30	30	
Number of Detects	3	3	4	3	4	3	3	3	3	4	2	4	0	0	1	1	0	0	0	0	0	
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	45	110	860	340	1310	55	55	200	200	1010	180	1370	<0.2	<1	2.7	2.7	<2	<1	<1	<3	<3	
Average Concentration	7.5	31	118	72	135	8.1	8.1	38	38	131	58	141	0.1	0.26	0.33	0.19	0.28	0.26	0.29	0.29	0.29	
Median Concentration	5	25	50	50	25	5	5															



Table 4j. Soil Summary - AEC VJ  
Vales Point Power Station  
Project Symphony - 0237747

	Metals																	PAH																							
	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOB))	Carcinogenic PAHs (as B(a)P TEQ (LOB))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	4	1	1	3	0.4	1	1	1	1	1	0.1	1	1	2	2	1	1	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5		
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																									
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																									
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																																									
Human Health - HSL-D - Vapour Intrusion + 4m SAND																																									
Human Health - Intrusive - Vapour Intrusion 0-<2m																																									
Human Health - Intrusive - Vapour Intrusion 2-<4m																																									
Human Health - Intrusive - Vapour Intrusion + 4m																																									
Human Health - Intrusive - Direct Contact																																									
Human Health - Direct Contact - HIL-D																																									
NEPM (2013) EIL - Commercial/Industrial (Aged)																																									
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																									
NEPM (2013) ESL - Commercial & Industrial (Fine)																																									

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOB))	Carcinogenic PAHs (as B(a)P TEQ (LOB))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)		
106617-1	T01_130314_GP	VJ_MW04	0.1-0.3	13/03/2014	<4	3	<1	<3	<0.4	5	<1	<1	<1	6	3	<0.1	<1	<2	<2	18	3	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-	
ES1405660006	VJ_MW04_0.2	VJ_MW04	0.1-0.3	13/03/2014	<5	<10	<1	<50	<1	6	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	23	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660008	VJ_SB03_1.4	VJ_SB03	1.3-1.6	13/03/2014	5	<10	<1	<50	<1	14	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	40	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660010	VJ_MW03_0.5	VJ_MW03	0.4-0.6	13/03/2014	<5	20	<1	<50	<1	30	<2	10	11	73	<0.1	<2	4	<5	<5	70	18	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660011	D01_130314_GP	VJ_MW03	0.4-0.6	13/03/2014	<5	20	<1	<50	<1	12	<2	10	7	60	<0.1	<2	4	<5	<5	32	17	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405660012	VJ_SB02_1.0	VJ_SB02	0.9-1.1	13/03/2014	<5	<10	<1	<50	<1	7	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	34	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405660013	VJ_MW02_0.5	VJ_MW02	0.4-0.6	13/03/2014	<5	<10	<1	<50	<1	9	<2	<5	6	17	<0.1	<2	2	<5	<5	27	12	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405660014	VJ_SB04_0.15	VJ_SB04	0.05-0.25	13/03/2014	<5	<10	<1	<50	<1	4	<2	<5	<5	20	<0.1	<2	2	<5	<5	11	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	1.4	<0.5	<0.5	
ES1405660015	VJ_SB01_1.0	VJ_SB01	0.9-1.1	13/03/2014	<5	20	<1	<50	<1	<2	<2	<5	<5	28	<0.1	<2	<2	<5	<5	8	<5	<0.5	<0.5	<0.5	0.8	<0.5	-	<0.5	<0.5	<0.5	0.7	1.2	<1-0.8	0.9	<0.5	1.9	<0.5	<0.5	3.8	1.3	9.5	<0.5	<0.5	
ES1405736002	VJ_SB03_2.0	VJ_SB03	1.9-2.1	14/03/2014	<5	<10	<1	<50	<1	35	<2	<5	6	17	<0.1	<2	<2	<5	<5	72	7	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405736003	VJ_MW02_4.0	VJ_MW02	3.9-4.1	14/03/2014	<5	10	<1	<50	<1	8	<2	<5	<5	32	<0.1	<2	<2	<5	<5	7	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405736004	VJ_SB02_3.0	VJ_SB02	2.9-3.1	14/03/2014	<5	<10	<1	<50	<1	5	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	6	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405736005	VJ_SB04_3.0	VJ_SB04	2.9-3.1	14/03/2014	<5	20	<1	<50	<1	2	<2	<5	10	<5	<0.1	<2	<2	<5	<5	6	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405737001	VJ_MW04_5.1	VJ_MW04	5-5.2	14/03/2014	<5	<10	<1	<50	<1	4	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405737003	VJ_MW03_4.0	VJ_MW03	3.9-4.1	14/03/2014	<5	30	<1	<50	<1	3	<2	<5	6	<5	<0.1	<2	<2	<5	<5	6	<5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405737010	VJ_MW03_2.1	VJ_MW03	2-2.2	14/03/2014	<5	50	<1	<50	<1	4	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	10	5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405738005	VJ_MW08_1.0	VJ_MW08	0.9-1.1	14/03/2014	<5	-	-	-	<1	6	-	<5	6	-	<0.1	-	<2	-	-	-	8	<0.5	<0.5	0.9	1.9	0.6	-	0.8	<0.5	<0.5	1.2	1.5	<1-3.2	1.8	<0.5	6.1	0.6	<0.5	9.6	4.5				







	TRH											BTEX							
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
FQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																			
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300			75	165	135				180
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600			95	185	135				95

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675003	VK_MW01_3.5	VK_MW01	3.4-3.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675010	D02_130314_HC	VK_MW01	3.4-3.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405525018	VK_MW02_0.2	VK_MW02	0.1-0.3	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405525021	VK_MW02_1.0	VK_MW02	0.9-1.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675004	VK_MW02_2.5	VK_MW02	2.4-2.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675005	VK_MW02_3.6	VK_MW02	3.5-3.7	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405525022	VK_MW03_0.15	VK_MW03	0.05-0.25	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675006	VK_MW03_2.6	VK_MW03	2.5-2.7	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405525024	VK_MW04_0.2	VK_MW04	0.1-0.3	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675007	VK_MW04_3.0	VK_MW04	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405737002	VK_MW05_6.0	VK_MW05	5.9-6.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405737009	VK_MW05_6.8	VK_MW05	6.7-6.9	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738010	VK_MW05_1.5	VK_MW05	1.4-1.6	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738003	VK_MW06_0.5	VK_MW06	0.4-0.6	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405880001	VK_MW06_2.0	VK_MW06	1.9-2.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405738004	VK_MW07_1.0	VK_MW07	0.9-1.1	14/03/2014	<10	<50	300	270	570	<10	<10	<50	<50	540	<100	540	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405962001	VK_MW07_1.8	VK_MW07	1.7-1.9	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405525017	VK_SB01_0.5	VK_SB01	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675001	VK_SB01_3.5	VK_SB01	3.4-3.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405675009	D01_130314_HC	VK_SB01	3.4-3.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1405963006	VK_SB02_1.0	VK_SB02	0.9-1.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406908001	VK_SB02_3.9	VK_SB02	3.8-4	27/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
ES1406908002	D01_270314_GP	VK_SB02	3.8-4	27/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5

**Statistical Summary**

Number of Results	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Number of Detects	0	0	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Maximum Concentration	<10	<50	300	270	570	<10	<10	<50	<50	540	<100	540	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	
Average Concentration	5	25	61	60	49	5	5	25	25	71	50	47	0.1	0.25	0.25	0.1	0.25	0.1	0.25	0.25	0.25	0.25	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.1	0.25	0.25	0.25	0.25	
Standard Deviation	0	0	52	46	114	0	0	0	0	102	0	107	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

**Comments**

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial











Table 4L. Soil Summary - AEC VL  
Vales Point Power Station  
Project Symphony -0237747

	TRH											BTEX						Metals									
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>				3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>									
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>				3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>									
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>				3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>									
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>				3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>									
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>				77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>									
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>				160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>									
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>									
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>									
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>	240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>		
NEPM (2013) EIL - Commercial/Industrial (Aged)																											
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300		75	165	135				180			670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>	25 <sup>#1</sup>	230 <sup>#1</sup>		
NEPM (2013) ESL - Commercial & Industrial (Fine)									2500	6600		95	185	135				95									

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	18	<5	5	<0.1	4	<5
ES1405879006	VL_MW01_1.0	VL_MW01	0.9-1.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	18	<5	5	<0.1	4	<5
ES1405879007	D01_170314_GP	VL_MW01	0.9-1.1	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	20	<5	5	<0.1	5	<5
ES1405879008	VL_MW01_1.5	VL_MW01	1.4-1.6	17/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406278003	VL_MW02_1.0	VL_MW02	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5
ES1406278004	D01_200314_GP	VL_MW02	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1406278007	VL_MW03_0.5	VL_MW03	0.4-0.6	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5
ES1406498005	VL_MW01_3.0	VL_MW01	2.9-3.1	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	7	5	<0.1	<2	<5
ES1406498006	VL_MW03_2.0	VL_MW03	1.9-2.1	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5
ES1406590030	VL_MW02_2.0	VL_MW02	1.9-2.1	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	<5	<5	<0.1	<2	<5
ES1407203009	VL_SB01_0.1	VL_SB01	0-0.2	31/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	40

Statistical Summary

Number of Results	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1	3	0	2	1		
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5	
Maximum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	20	7	5	<0.1	5	40	
Average Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	9	3	3.3	0.05	1.8	6.7	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	6	2.5	2.5	0.05	1	2.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	1.5	1.3	0	1.6	13	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
- #12 US EPA (2009) Residential screening levels for soil





Table 4m. Soil Summary - AEC VM  
Vales Point Power Station  
Project Symphony - 0237747

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>		240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	400000 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																				160 <sup>#1</sup>		670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>	25 <sup>#1</sup>		230 <sup>#1</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215		170	1700	3300		75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600		95	185	135				95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1406140009	VM_MW01_0.5	VM_MW01	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1406280003	VM_MW01_2.0	VM_MW01	1.9-2.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1407203001	VM_MW02_0.1	VM_MW02	0-0.2	31/03/2014	<10	<50	120	130	250	<10	<10	<50	<50	190	140	330	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	2	31	59	113	<0.1	13	541
ES1406140016	VM_MW03_1.5	VM_MW03	1.4-1.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	14	5	<0.1	13	42
ES1406280006	VM_MW03_6.0	VM_MW03	5.9-6.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	6	<5	<0.1	6	26
ES1406140014	VM_MW04_1.0	VM_MW04	0.9-1.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	<5
ES1406590032	VM_MW04_3.0	VM_MW04	2.9-3.1	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5
ES1407203002	VM_MW05_0.1	VM_MW05	0-0.2	31/03/2014	<10	<50	270	<100	270	<10	<10	<50	<50	300	<100	300	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	26	9	9	<0.1	4	55
ES1407203003	VM_SB01_0.01	VM_SB01	0-0.11	31/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	13	15	14	<0.1	10	120

Statistical Summary

Number of Results	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Number of Detects	0	0	2	1	2	0	0	0	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	9	5	4	0	5	5
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5	
Maximum Concentration	<10	<50	270	130	270	<10	<10	<50	<50	300	140	330	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	2	31	59	113	<0.1	13	541	
Average Concentration	5	25	82	59	77	5	5	25	25	93	60	89	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.67	11	13	17	0.05	5.6	88	
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	7	6	2.5	0.05	4	26	
Standard Deviation	0	0	74	27	104	0	0	0	0	90	30	128	0	0	0	0	0	0	0	0	0	0	0	0.5	11	18	36	0	5.2	174	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial





	TRH												
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	100	50
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>		NL <sup>#9</sup>				
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>		NL <sup>#8</sup>				
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>		NL <sup>#7</sup>				
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>		NL <sup>#10</sup>				
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>		NL <sup>#3</sup>				
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>		NL <sup>#2</sup>				
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>		NL <sup>#4</sup>				
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>		62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>		20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		
NEPM (2013) EIL - Commercial/Industrial (Aged)													
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215		170	1700	3300		
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600		
NEPM (2013) EIL - Areas of ecological significance													
NEPM (2013) ESL - Areas of ecological significance (Coarse)							125		25				
NEPM (2013) ESL - Areas of ecological significance (Fine)													

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	<50
I06332-1	I01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121011	VN_SB05_0.5	VN_SB05	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121012	VN_MW06_0.2	VN_MW06	0.1-0.3	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121013	VN_MW07_0.5	VN_MW07	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121014	VN_MW08_0.2	VN_MW08	0.1-0.3	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121015	VN_MW08_5.0	VN_MW08	4.9-5.1	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121016	D01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121023	VN_MW09_0.5	VN_MW09	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121024	VN_SB04_0.5	VN_SB04	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121025	VN_MW12_0.2	VN_MW12	0.1-0.3	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121026	VN_MW05_0.5	VN_MW05	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405121027	VN_SB02_0.2	VN_SB02	0.1-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405226001	VN_SB01_0.5	VN_SB01	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405226002	VN_SB03_0.5	VN_SB03	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405226003	VN_MW01_0.2	VN_MW01	0.1-0.3	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405226004	VN_MW02_0.5	VN_MW02	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405226005	D01_100314_DB	VN_MW02	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405227025	VN_MW09_4.2	VN_MW09	4.1-4.3	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405227026	VN_MW05_6.0	VN_MW05	5.9-6.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405362019	VN_MW07_1.8	VN_MW07	1.7-1.9	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405362021	VN_MW06_2.3	VN_MW06	2.2-2.4	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405362023	VN_SB05_0.2	VN_SB05	0.1-0.3	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525007	VN_MW12_1.6	VN_MW12	1.5-1.7	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525009	VN_SB02_3.0	VN_SB02	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525010	D01_120314_SB	VN_SB04	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525011	VN_SB04_3.0	VN_SB04	2.9-3.1	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525012	VN_MW02_3.7	VN_MW02	3.6-3.8	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525013	VN_MW01_3.9	VN_MW01	3.8-4	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405525014	VN_SB01_2.3	VN_SB01	2.2-2.4	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405660001	VN_SB03_1.2	VN_SB03	1.1-1.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405660002	VN_MW03_0.4	VN_MW03	0.3-0.5	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405660003	VN_MW03_0.8	VN_MW03	0.7-0.9	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405660004	VN_MW10_0.2	VN_MW10	0.1-0.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405660005	VN_MW10_3.0	VN_MW10	2.9-3.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50

Statistical Summary	34	34	34	34	33	34	34	34	34	34	34	34	34
Number of Results	34	34	34	34	33	34	34	34	34	34	34	34	33
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<50
Maximum Concentration	<25	<50	<100	<100	<50	<25	<25	<50	<50	<100	<100	<50	<50
Average Concentration	5.2	25	50	50	25	5.2	5.2	25	25	50	50	25	25
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	25
Standard Deviation	1.3	0	0	0	0	1.3	1.3	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

	BTEX							Metals																
	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	1	1	50	0.4	1	1	1	1	0.1	2	1	5	5	1	1	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND	3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>																	
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND	3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>																	
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND	3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>																	
Human Health - HSL-D - Vapour Intrusion + 4m SAND	3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>																	
Human Health - Intrusive - Vapour Intrusion 0-<2m	77 <sup>#5</sup>	NL <sup>#5</sup>	NL <sup>#5</sup>				NL <sup>#5</sup>																	
Human Health - Intrusive - Vapour Intrusion 2-<4m	160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>																	
Human Health - Intrusive - Vapour Intrusion + 4m	NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>																	
Human Health - Intrusive - Direct Contact	1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>																	
Human Health - Direct Contact - HIL-D	430 <sup>#5</sup>	27000 <sup>#5</sup>	99000 <sup>#5</sup>				81000 <sup>#5</sup>	3000 <sup>#11</sup>				900 <sup>#11</sup>			240000 <sup>#11</sup>	1500 <sup>#11</sup>		730 <sup>#11</sup>		6000 <sup>#11</sup>	10000 <sup>#11</sup>		400000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)								160 <sup>#1</sup>					670 <sup>#1</sup>		75 <sup>#1</sup>	1800 <sup>#1</sup>				25 <sup>#1</sup>			230 <sup>#1</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)	75	165	135				180																	
NEPM (2013) ESL - Commercial & Industrial (Fine)	95	185	135				95																	
NEPM (2013) EIL - Areas of ecological significance								40 <sup>#7</sup>					140 <sup>#7</sup>		30 <sup>#7</sup>	470 <sup>#7</sup>				4 <sup>#7</sup>			40 <sup>#7</sup>	
NEPM (2013) ESL - Areas of ecological significance (Coarse)	10	1.5	10				10																	
NEPM (2013) ESL - Areas of ecological significance (Fine)	10	40	65				1.6																	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.2	<1	<0.5	-	<2	<1	<1	9	<1	-	<0.4	4	<1	<1	2	1	<0.1	-	<1	-	-	6	<1	
106332-1	T01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<0.2	<1	<0.5	-	<2	<1	<1	9	<1	-	<0.4	4	<1	<1	2	1	<0.1	-	<1	-	-	6	<1	
ES1405121011	VN_SB05_0.5	VN_SB05	0.4-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	360	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	-	<2	<5	-	<5	15	
ES1405121012	VN_MW06_0.2	VN_MW06	0.1-0.3	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<50	<1	5	<2	<5	<5	<5	<0.1	-	<2	<5	-	19	15	
ES1405121013	VN_MW07_0.5	VN_MW07	0.4-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<0.1	-	<2	<5	-	10	8	
ES1405121014	VN_MW08_0.2	VN_MW08	0.1-0.3	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	4	<2	<5	10	17	<0.1	-	<2	<5	-	14	8
ES1405121015	VN_MW08_5.0	VN_MW08	4.9-5.1	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	<50	<1	6	<2	<5	<5	<5	<0.1	-	<2	<5	-	11	6	
ES1405121016	D01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	<50	<1	5	<2	<5	<5	<5	<0.1	-	<2	<5	-	10	5	
ES1405121023	VN_MW09_0.5	VN_MW09	0.4-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	7	<2	<5	<5	<0.1	-	<2	<5	-	20	<5	
ES1405121024	VN_SB04_0.5	VN_SB04	0.4-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	<50	<1	3	<2	<5	6	5	<0.1	-	<2	<5	-	17	<5	
ES1405121025	VN_MW12_0.2	VN_MW12	0.1-0.3	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	12	<2	<5	5	5	<0.1	-	<2	<5	-	32	<5
ES1405121026	VN_MW05_0.5	VN_MW05	0.4-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	<50	<1	5	<2	<5	<5	<5	<0.1	-	<2	<5	-	17	<5	
ES1405121027	VN_SB02_0.2	VN_SB02	0.1-0.6	7/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<0.1	-	<2	<5	-	7	<5	
ES1405226001	VN_SB01_0.5	VN_SB01	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	26	<2	<5	8	8	<0.1	<2	<2	<5	<5	65	<5	
ES1405226002	VN_SB03_0.5	VN_SB03	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	18	<2	<5	8	5	<0.1	<2	<2	<5	<5	49	<5	
ES1405226003	VN_MW01_0.2	VN_MW01	0.1-0.3	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	12	<2	<5	7	5	<0.1	<2	<2	<5	<5	41	<5
ES1405226004	VN_MW02_0.5	VN_MW02	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	20	<2	<5	7	5	<0.1	<2	<2	<5	<5	51	<5	
ES1405226005	D01_100314_DB	VN_MW02	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	19	<2	<5	8	5	<0.1	<2	<2	<5	<5	46	<5	
ES1405227025	VN_MW09_4.2	VN_MW09	4.1-4.3	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	4	<2	<5	5	5	<0.1	-	<2	<5	-	21	<5	
ES1405227026	VN_MW05_6.0	VN_MW05	5.9-6.1	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	20	<1	<50	<1	7	<2	<5	5	5	<0.1	-	<2	<5	-	5	<5	
ES1405362019	VN_MW07_1.8	VN_MW07	1.7-1.9	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	2	<2	<5	5	5	<0.1	-	<2	<5	-	5	<5
ES1405362021	VN_MW06_2.3	VN_MW06	2.2-2.4	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	5	5	<0.1	-	<2	<5	-	5	<5
ES1405362023	VN_SB05_0.2	VN_SB05	0.1-0.3	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	940	<1	<50	<1	2	<2	<5	7	5	<0.1	-	<2	<5	-	13	<5	
ES1405525007	VN_MW12_1.6	VN_MW12	1.5-1.7	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	3	<2	<5	5	5	<0.1	<2	<2	<5	<5	8	<5
ES1405525009	VN_SB02_3.0	VN_SB02	2.9-3.1	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	<50	<1	10	<2	<5	5	5	<0.1	<2	<2	<5	<5	34	<5	
ES1405525010	D01_120314_SB	VN_SB04	2.9-3.1	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	6	<2	<5	5	5	<0.1	<2	<2	<5	<5	23	<5
ES1405525011	VN_SB04_3.0	VN_SB04	2.9-3.1	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	4	<2	<5	5	5	<0.1	<2	<2	<5	<5	9	<5
ES1405525012	VN_MW02_3.7	VN_MW02	3.6-3.8	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	16	<2	8	6	5	<0.1	<2	<2	<5	<5	26	<5
ES1405525013	VN_MW01_3.9	VN_MW01	3.8-4	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	8	<2	12	5	5	<0.1	<2	<2	<5	<5	30	<5
ES1405525014	VN_SB01_2.3	VN_SB01	2.2-2.4	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	30	<1	<50	<1	5	<2	<5	6	5	<0.1	<2	<2	<5	<5	6		

	PAH																					
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(e)pyrene	Benzo(i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND												NL <sup>#9</sup>										
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND												NL <sup>#8</sup>										
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND												NL <sup>#7</sup>										
Human Health - HSL-D - Vapour Intrusion + 4m SAND												NL <sup>#10</sup>										
Human Health - Intrusive - Vapour Intrusion 0-<2m												NL <sup>#3</sup>										
Human Health - Intrusive - Vapour Intrusion 2-<4m												NL <sup>#2</sup>										
Human Health - Intrusive - Vapour Intrusion + 4m												NL <sup>#4</sup>										
Human Health - Intrusive - Direct Contact												29000 <sup>#5</sup>										
Human Health - Direct Contact - HIL-D												11000 <sup>#6</sup>									4000 <sup>#11</sup>	40 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)												370 <sup>#1</sup>										
NEPM (2013) ESL - Commercial & Industrial (Coarse)					0.7																	
NEPM (2013) ESL - Commercial & Industrial (Fine)					0.7																	
NEPM (2013) EIL - Areas of ecological significance												370 <sup>#1</sup>										
NEPM (2013) ESL - Areas of ecological significance (Coarse)					0.7																	
NEPM (2013) ESL - Areas of ecological significance (Fine)					0.7																	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-
106332-1	T01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-
ES1405121011	VN_SB05_0.5	VN_SB05	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121012	VN_MW06_0.2	VN_MW06	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121013	VN_MW07_0.5	VN_MW07	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121014	VN_MW08_0.2	VN_MW08	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121015	VN_MW08_5.0	VN_MW08	4.9-5.1	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121016	D01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121023	VN_MW09_0.5	VN_MW09	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121024	VN_SB04_0.5	VN_SB04	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121025	VN_MW12_0.2	VN_MW12	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121026	VN_MW05_0.5	VN_MW05	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405121027	VN_SB02_0.2	VN_SB02	0.1-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405226001	VN_SB01_0.5	VN_SB01	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405226002	VN_SB03_0.5	VN_SB03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405226003	VN_MW01_0.2	VN_MW01	0.1-0.3	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405226004	VN_MW02_0.5	VN_MW02	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405226005	D01_100314_DB	VN_MW02	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227025	VN_MW09_4.2	VN_MW09	4.1-4.3	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227026	VN_MW05_6.0	VN_MW05	5.9-6.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362019	VN_MW07_1.8	VN_MW07	1.7-1.9	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362021	VN_MW06_2.3	VN_MW06	2.2-2.4	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362023	VN_SB05_0.2	VN_SB05	0.1-0.3	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525007	VN_MW12_1.6	VN_MW12	1.5-1.7	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525009	VN_SB02_3.0	VN_SB02	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525010	D01_120314_SB	VN_SB04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525011	VN_SB04_3.0	VN_SB04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525012	VN_MW02_3.7	VN_MW02	3.6-3.8	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525013	VN_MW01_3.9	VN_MW01	3.8-4	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405525014	VN_SB01_2.3	VN_SB01	2.2-2.4	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660001	VN_SB03_1.2	VN_SB03	1.1-1.3	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660002	VN_MW03_0.4	VN_MW03	0.3-0.5	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660003	VN_MW03_0.8																							

	Phenols												
	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	2,6-methylphenol	2-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total
EQL	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5	
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND													
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND													
Human Health - HSL-D - Vapour Intrusion + 4m SAND													
Human Health - Intrusive - Vapour Intrusion 0-<2m													
Human Health - Intrusive - Vapour Intrusion 2-<4m													
Human Health - Intrusive - Vapour Intrusion + 4m													
Human Health - Intrusive - Direct Contact													
Human Health - Direct Contact - HIL-D											660 <sup>#11</sup>	24000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)													
NEPM (2013) ESL - Commercial & Industrial (Coarse)													
NEPM (2013) ESL - Commercial & Industrial (Fine)													
NEPM (2013) EIL - Areas of ecological significance													
NEPM (2013) ESL - Areas of ecological significance (Coarse)													
NEPM (2013) ESL - Areas of ecological significance (Fine)													

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	-	-	-	-	-	-	-	-	-	-	-	-	
I06332-1	I01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	-	-	-	-	-	-	-	-	-	-	-	<5	
ES1405121011	VN_SB05_0.5	VN_SB05	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121012	VN_MW06_0.2	VN_MW06	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121013	VN_MW07_0.5	VN_MW07	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121014	VN_MW08_0.2	VN_MW08	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121015	VN_MW08_5.0	VN_MW08	4.9-5.1	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121016	D01_070314_SB	VN_MW08	4.9-5.1	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121023	VN_MW09_0.5	VN_MW09	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121024	VN_SB04_0.5	VN_SB04	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121025	VN_MW12_0.2	VN_MW12	0.1-0.3	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121026	VN_MW05_0.5	VN_MW05	0.4-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405121027	VN_SB02_0.2	VN_SB02	0.1-0.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405226001	VN_SB01_0.5	VN_SB01	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405226002	VN_SB03_0.5	VN_SB03	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405226003	VN_MW01_0.2	VN_MW01	0.1-0.3	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405226004	VN_MW02_0.5	VN_MW02	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405226005	D01_100314_DB	VN_MW02	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405227025	VN_MW09_4.2	VN_MW09	4.1-4.3	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405227026	VN_MW05_6.0	VN_MW05	5.9-6.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405362019	VN_MW07_1.8	VN_MW07	1.7-1.9	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405362021	VN_MW06_2.3	VN_MW06	2.2-2.4	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405362023	VN_SB05_0.2	VN_SB05	0.1-0.3	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525007	VN_MW12_1.6	VN_MW12	1.5-1.7	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525009	VN_SB02_3.0	VN_SB02	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525010	D01_120314_SB	VN_SB04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525011	VN_SB04_3.0	VN_SB04	2.9-3.1	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525012	VN_MW02_3.7	VN_MW02	3.6-3.8	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525013	VN_MW01_3.9	VN_MW01	3.8-4	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405525014	VN_SB01_2.3	VN_SB01	2.2-2.4	12/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405660001	VN_SB03_1.2	VN_SB03	1.1-1.3	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405660002	VN_MW03_0.4	VN_MW03	0.3-0.5	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405660003	VN_MW03_0.8	VN_MW03	0.7-0.9	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405660004	VN_MW10_0.2	VN_MW10	0.1-0.3	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-
ES1405660005	VN_MW10_3.0	VN_MW10	2.9-3.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	-

Statistical Summary	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	1
Number of Results	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	<5		
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5	<5		
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	1	0.25			
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	1	0.25	2.5			
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0			

Comments

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial

				TRH												
				TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C37-C56 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQI				10	50	100	100	50	10	10	50	50	100	100	50	
Human Health - HSL-D - Vapour Intrusion 0-1m SAND										260 <sup>#9</sup>		NI <sup>#9</sup>				
Human Health - HSL-D - Vapour Intrusion 1-2m SAND										370 <sup>#8</sup>		NI <sup>#8</sup>				
Human Health - HSL-D - Vapour Intrusion 2-4m SAND										630 <sup>#7</sup>		NI <sup>#7</sup>				
Human Health - HSL-D - Vapour Intrusion + 4m SAND										NI <sup>#10</sup>		NI <sup>#10</sup>				
Human Health - Intrusive - Vapour Intrusion 0-2m										NI <sup>#3</sup>		NI <sup>#3</sup>				
Human Health - Intrusive - Vapour Intrusion 2-4m										NI <sup>#2</sup>		NI <sup>#2</sup>				
Human Health - Intrusive - Vapour Intrusion + 4m										NI <sup>#4</sup>		NI <sup>#4</sup>				
Human Health - Intrusive - Direct Contact										82000 <sup>#5</sup>		62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>		
Human Health - Direct Contact - HIL-D										26000 <sup>#6</sup>		20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>		
NEPM (2013) EIL - Commercial/Industrial (Aged)																
NEPM (2013) ESL - Commercial & Industrial (Coarse)										215		170	1700	3300		
NEPM (2013) ESL - Commercial & Industrial (Fine)													2500	6600		
NEPM (2013) EIL - Areas of ecological significance (Coarse)										125		25				
NEPM (2013) ESL - Areas of ecological significance (Coarse)																
NEPM (2013) ESL - Areas of ecological significance (Fine)																

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
107225-1	I01_240314_CM	VO_MW08	1.7-1.9	24/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
107340-1	I01_260314_SB	VO_MW15	4.4-4.6	26/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
ESI404115001	VO_MW07_0.1	VO_MW07	0.0-2	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115002	VO_MW07_1.0	VO_MW07	0.9-1.1	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115003	VO_MW20_0.1	VO_MW20	0.0-2	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115004	VO_MW20_1.5	VO_MW20	1.4-1.6	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115005	VO_MW09_0.1	VO_MW09	0.0-2	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115006	VO_MW09_0.5	VO_MW09	0.4-0.6	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115011	VO_MW10_1.0	VO_MW10	0.9-1.1	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115012	VO_MW11_0.1	VO_MW11	0.0-2	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115013	VO_MW11_1.5	VO_MW11	1.4-1.6	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115028	VO_MW10_0.2	VO_MW10	0.1-0.3	26/02/2014	29	<50	350	120	470	36	36	80	80	380	<100	460
ESI404400001	VO_MW06_0.2	VO_MW06	0.1-0.3	27/02/2014	<10	60	430	130	620	12	12	110	110	470	<100	580
ESI404400002	VO_MW05_0.2	VO_MW05	0.1-0.3	27/02/2014	<10	<50	170	<100	170	12	12	<50	<50	180	<100	180
ESI404400004	VO_MW04_0.5	VO_MW04	0.4-0.6	27/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404400015	VO_MW09_2.0	VO_MW09	1.9-2.1	27/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404400016	D01_270214_CM	VO_MW09	1.9-2.1	27/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404400017	VO_MW09_8.0	VO_MW09	7.9-8.1	27/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580006	VO_MW16_0.5	VO_MW16	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580007	D01_030314_RP	VO_MW16	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580011	VO_SB03_0.5	VO_SB03	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580012	VO_SB03_1.0	VO_SB03	0.9-1.1	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580020	VO_MW10_2.0	VO_MW10	1.9-2.1	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580021	VO_MW20_2.0	VO_MW20	1.9-2.1	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881013	VO_SB03_3.0	VO_SB03	2.9-3.1	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881014	VO_MW16_4.6	VO_MW16	4.5-4.7	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881024	VO_MW07_5.0	VO_MW07	4.9-5.1	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881025	VO_MW05_3.0	VO_MW05	2.9-3.1	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881026	VO_MW04_2.0	VO_MW04	1.9-2.1	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881028	VO_MW01_2.0	VO_MW01	1.9-2.1	5/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881031	VO_MW01_0.5	VO_MW01	0.4-0.6	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881033	VO_MW12_0.5	VO_MW12	0.4-0.6	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881035	VO_SB01_0.5	VO_SB01	0.4-0.6	4/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121003	VO_MW12_7.5	VO_MW12	7.4-7.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121004	VO_SB01_3.0	VO_SB01	2.9-3.1	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121006	VO_MW13_3.7	VO_MW13	3.6-3.8	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121007	D01_070314_GP	VO_MW13	3.6-3.8	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121019	VO_MW13_0.5	VO_MW13	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405121020	D01_070314_RP	VO_MW13	0.4-0.6	7/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227018	VO_MW06_2.0	VO_MW06	1.9-2.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227019	VO_MW18_0.1	VO_MW18	0.0-2	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227020	VO_MW18_5.0	VO_MW18	4.9-5.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406139003	VO_MW03_7.0	VO_MW03	6.9-7.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141001	VO_MW02_0.5	VO_MW02	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141002	VO_MW03_0.5	VO_MW03	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141003	VO_MW08_0.5	VO_MW08	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141004	D01_190314_DB	VO_MW08	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141005	VO_MW19_0.5	VO_MW19	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406275006	VO_MW14_0.5	VO_MW14	0.4-0.6	20/03/2014	<10	<50	<100	<100								



	BTEX							Metals																
	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EOL	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	1	1	3	0.4	1	1	1	1	1	0.1	1	1	2	2	1	1
Human Health - HSL-D - Vapour Intrusion 0-1m SAND	3 <sup>92</sup>	NI <sup>92</sup>	NI <sup>92</sup>				230 <sup>92</sup>																	
Human Health - HSL-D - Vapour Intrusion 1-2m SAND	3 <sup>93</sup>	NI <sup>93</sup>	NI <sup>93</sup>				NI <sup>93</sup>																	
Human Health - HSL-D - Vapour Intrusion 2-4m SAND	3 <sup>94</sup>	NI <sup>94</sup>	NI <sup>94</sup>				NI <sup>94</sup>																	
Human Health - HSL-D - Vapour Intrusion + 4m SAND	3 <sup>95</sup>	NI <sup>95</sup>	NI <sup>95</sup>				NI <sup>95</sup>																	
Human Health - Intrusive - Vapour Intrusion 0-2m	77 <sup>93</sup>	NI <sup>93</sup>	NI <sup>93</sup>				NI <sup>93</sup>																	
Human Health - Intrusive - Vapour Intrusion 2-4m	160 <sup>92</sup>	NI <sup>92</sup>	NI <sup>92</sup>				NI <sup>92</sup>																	
Human Health - Intrusive - Vapour Intrusion + 4m	NI <sup>94</sup>	NI <sup>94</sup>	NI <sup>94</sup>				NI <sup>94</sup>																	
Human Health - Intrusive - Direct Contact	1100 <sup>95</sup>	85000 <sup>95</sup>	120000 <sup>95</sup>				130000 <sup>95</sup>																	
Human Health - Direct Contact - Hill-D	430 <sup>96</sup>	27000 <sup>96</sup>	99000 <sup>96</sup>				81000 <sup>96</sup>																	
NEPM (2013) EIL - Commercial/Industrial (Aged)								3000 <sup>91</sup>				900 <sup>91</sup>			240000 <sup>91</sup>	1500 <sup>91</sup>			730 <sup>91</sup>		6000 <sup>91</sup>	10000 <sup>91</sup>		400000 <sup>91</sup>
NEPM (2013) EIL - Commercial & Industrial (Coarse)	75	165	135				180					670 <sup>91</sup>		75 <sup>91</sup>	1800 <sup>91</sup>						25 <sup>91</sup>			230 <sup>91</sup>
NEPM (2013) EIL - Commercial & Industrial (Fine)	95	185	135				95																	
NEPM (2013) EIL - Areas of ecological significance (Coarse)	10	1.5	10					30 <sup>91</sup>				140 <sup>91</sup>		30 <sup>91</sup>	370 <sup>91</sup>						4 <sup>91</sup>			40 <sup>91</sup>
NEPM (2013) EIL - Areas of ecological significance (Fine)	10	40	65				1.6																	

SampleCode	Field ID	LocCode	Sample Depth Range	Sample Date	<0.2	<1	<0.5	-	<2	<1	<3	<4	5	<1	<3	<0.4	5	<1	<1	4	2	<0.1	<1	<1	<2	<2	5	3
I07225-1	D01_240314_CM	VO_MW08	1.7-1.9	24/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	5	<1	<3	<0.4	5	<1	<1	4	2	<0.1	<1	<1	<2	<2	5	3
I07360-1	D01_260314_SB	VO_MW15	4.4-4.6	26/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	3	<1	<3	<0.4	4	<1	<1	3	<1	<0.1	<1	<1	<2	<2	19	<1
ESI404115001	VO_MW07_0.1	VO_MW07	0.0-2	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	11	<0.1	<1	<2	<5	<1	<5	<5
ESI404115002	VO_MW07_1.0	VO_MW07	0.9-1.1	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	17	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	<46	<5
ESI404115003	VO_MW20_0.1	VO_MW20	0.0-2	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7	<10	<1	<50	<1	<2	<2	<5	6	12	<0.1	<1	<2	<5	<1	9	<5
ESI404115004	VO_MW20_1.5	VO_MW20	1.4-1.6	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	9	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	26	<5
ESI404115005	VO_MW09_0.1	VO_MW09	0.0-2	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	6	<5
ESI404115006	VO_MW09_0.5	VO_MW09	0.4-0.6	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	8	<2	<5	<5	5	<0.1	<1	<2	<5	<1	24	<5
ESI404115011	VO_MW10_1.0	VO_MW10	0.9-1.1	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	7	<2	<5	7	<5	<0.1	<1	<2	<5	<1	33	<5
ESI404115012	VO_MW11_0.1	VO_MW11	0.0-2	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	8	<5
ESI404115013	VO_MW11_1.5	VO_MW11	1.4-1.6	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	4	<2	<5	5	<5	<0.1	<1	<2	<5	<1	20	<5
ESI404115028	VO_MW10_0.2	VO_MW10	0.1-0.3	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	7	<2	<5	<5	<5	0.2	<1	<2	<5	<1	31	<5
ESI404400001	VO_MW06_0.2	VO_MW06	0.1-0.3	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	90	<1	<50	<1	4	3	12	10	386	<0.1	<1	<2	<5	<1	11	35
ESI404400002	VO_MW05_0.2	VO_MW05	0.1-0.3	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	30	<1	<50	<1	4	3	10	6	171	<0.1	<1	<2	<5	<1	12	22
ESI404400004	VO_MW04_0.5	VO_MW04	0.4-0.6	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	10	<1	<50	<1	9	<2	<5	6	15	<0.1	<1	<2	<5	<1	34	8
ESI404400015	VO_MW09_2.0	VO_MW09	1.9-2.1	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	2	2	<5	6	51	<0.1	<1	<2	<5	<1	10	27
ESI404400016	D01_270214_CM	VO_MW09	1.9-2.1	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	2	2	<5	6	52	<0.1	<1	<2	<5	<1	8	26
ESI404400017	VO_MW09_8.0	VO_MW09	7.9-8.1	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	40	<1	<50	<1	17	2	6	8	15	<0.1	<1	<2	<5	<1	12	10
ESI404580006	VO_MW16_0.5	VO_MW16	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6	<10	<1	<50	<1	20	<2	<5	8	<5	<0.1	<1	<2	<5	<1	54	<5
ESI404580007	D01_030314_RP	VO_MW16	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	4	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	19	<5
ESI404580011	VO_SB03_0.5	VO_SB03	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	20	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	53	<5
ESI404580012	VO_SB03_1.0	VO_SB03	0.9-1.1	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	11	<2	<5	7	<5	<0.1	<1	<2	<5	<1	42	<5
ESI404580020	VO_MW10_2.0	VO_MW10	1.9-2.1	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	20	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	<5	<5
ESI404580021	VO_MW20_2.0	VO_MW20	1.9-2.1	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	5	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	7	<5
ESI404881013	VO_SB03_3.0	VO_SB03	2.9-3.1	4/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	<5	<5
ESI404881014	VO_MW16_4.6	VO_MW16	4.5-4.7	4/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	20	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<1	<2	<5	<1	<5	<5
ESI404881024	VO_MW07_5.0	VO_MW07	4.9-5.1	4/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	40	<1	<50	<1	8	3	5	5	145	<0.1	<1	<2	<5	<1	8	16
ESI404881025	VO_MW05_3.0	VO_MW05	2.9-3.1	4/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	8	<2	<5	5	9	<0.1	<1	<2	<5	<1	18	<5
ESI404881026	VO_MW04_2.0	VO																										







	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	0.4	1	1	1	0.1	1	1
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>		24000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	40000 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																											
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300			75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600		95	185	135				95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	5	<0.1	<2	<5	
ESI40440006	VP_MW01_0.5	VP_MW01	0.4-0.6	27/02/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	64	<5	7	5	<0.1	<2	<5
ESI405121002	VP_MW01_7.5	VP_MW01	7.4-7.6	7/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	<5	<5	<0.1	<2	<5	
ESI404881029	VP_MW02_2.0	VP_MW02	1.9-2.1	5/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5	
ESI404881037	VP_MW02_0.5	VP_MW02	0.4-0.6	4/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5	
ESI405881007	VP_SB01_0.2	VP_SB01	0.1-0.3	17/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	11	<1	22	302	475	<0.1	<2	4820	
106170-1	T01_050314_RP	VP_SB02	0.4-0.6	5/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	7	<0.4	14	35	44	<0.1	13	77	
ESI404881016	VP_SB02_0.5	VP_SB02	0.4-0.6	5/03/2014	<10	80	740	340	1160	<10	<10	160	160	910	180	1250	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	13	19	<0.1	<2	86
ESI404881017	D01_050314_RP	VP_SB02	0.4-0.6	5/03/2014	<10	80	700	300	1080	<10	<10	140	140	830	180	1150	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	11	16	<0.1	<2	79
ESI404881020	VP_SB03_0.5	VP_SB03	0.4-0.6	5/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	6	<0.1	<2	8	
105922-1	T01_270214_RP	VP_SB04	0.4-0.6	27/02/2014	<25	<50	<100	<100	-	<25	<25	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	3	10	8	<0.1	<1	14	
ESI404400008	VP_SB04_0.5	VP_SB04	0.4-0.6	27/02/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	2	<5	6	<0.1	<2	9	
ESI404400009	D01_270214_RP	VP_SB04	0.4-0.6	27/02/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	6	10	<0.1	<2	14	
ESI404881027	VP_SB04_2.0	VP_SB04	1.9-2.1	5/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	15	
ESI404400011	VP_SB05_1.0(TOC)	VP_SB05	0.9-1.1	27/02/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	36	<5	<5	<0.1	3	<5	
ESI404881003	VP_SB05_3.0	VP_SB05	2.9-3.1	5/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	22	<5	6	<0.1	3	14	
ESI404400012	VP_SB06_0.5	VP_SB06	0.4-0.6	27/02/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	19	<5	<5	<0.1	<2	6	
ESI404881002	VP_SB06_3.0	VP_SB06	2.9-3.1	5/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	<1	13	<5	<5	<0.1	<2	7	
ESI404580004	VP_SB07_0.5	VP_SB07	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	7	
ESI404881010	VP_SB07_3.0	VP_SB07	2.9-3.1	4/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7	<1	17	<5	<5	<0.1	4	14	
ESI404580002	VP_SB08_0.5	VP_SB08	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	5	<0.1	<2	<5	
ESI404881011	VP_SB08_3.0	VP_SB08	2.9-3.1	4/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	<5	<5	<0.1	<2	<5	
ESI405881001	VP_SB09_0.2	VP_SB09	0.1-0.3	17/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	9	<1	9	5	13	<0.1	<2	12	
ESI405881004	VP_SB10_0.5	VP_SB10	0.4-0.6	17/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6	<1	7	6	5	<0.1	3	10	
ESI405881005	D01_170314_RP	VP_SB10	0.4-0.6	17/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6	<1	6	8	6	<0.1	3	11	
ESI405881009	T01_170314_RP	VP_SB10	0.4-0.6	17/03/2014	<10	<50	<100	<100	<50	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6	<1	6	8					







	MAH									Halogenated Benzenes								Halogenated Hydrocarbons					Solvents							
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	0.5	1	5	5	5	0.5		5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																														
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																														
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND																														
Human Health - HSL-D - Vapour Intrusion + 4m SAND																														
Human Health - Intrusive - Vapour Intrusion 0-<2m																														
Human Health - Intrusive - Vapour Intrusion 2-<4m																														
Human Health - Intrusive - Vapour Intrusion + 4m																														
Human Health - Intrusive - Direct Contact																														
Human Health - Direct Contact - HIL-D																														
NEPM (2013) EIL - Commercial/Industrial (Aged)																														
NEPM (2013) ESL - Commercial & Industrial (Coarse)																														
NEPM (2013) ESL - Commercial & Industrial (Fine)																														

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate		
ES1404400006	VP_MW01_0.5	VP_MW01	0.4-0.6	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405121002	VP_MW01_7.5	VP_MW01	7.4-7.6	7/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881029	VP_MW02_2.0	VP_MW02	1.9-2.1	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881037	VP_MW02_0.5	VP_MW02	0.4-0.6	4/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405881007	VP_SB01_0.2	VP_SB01	0.1-0.3	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
106170-1	T01_050314_RP	VP_SB02	0.4-0.6	5/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1404881016	VP_SB02_0.5	VP_SB02	0.4-0.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881017	DO1_050314_RP	VP_SB02	0.4-0.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881020	VP_SB03_0.5	VP_SB03	0.4-0.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
105922-1	T01_270214_RP	VP_SB04	0.4-0.6	27/02/2014	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1404400008	VP_SB04_0.5	VP_SB04	0.4-0.6	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404400009	DO1_270214_RP	VP_SB04	0.4-0.6	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881027	VP_SB04_2.0	VP_SB04	1.9-2.1	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404400011	VP_SB05_1.0(TOC)	VP_SB05	0.9-1.1	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881003	VP_SB05_3.0	VP_SB05	2.9-3.1	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404400012	VP_SB06_0.5	VP_SB06	0.4-0.6	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881002	VP_SB06_3.0	VP_SB06	2.9-3.1	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404580004	VP_SB07_0.5	VP_SB07	0.4-0.6	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881010	VP_SB07_3.0	VP_SB07	2.9-3.1	4/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404580002	VP_SB08_0.5	VP_SB08	0.4-0.6	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1404881011	VP_SB08_3.0	VP_SB08	2.9-3.1	4/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405881001	VP_SB09_0.2	VP_SB09	0.1-0.3	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405881004	VP_SB10_0.5	VP_SB10	0.4-0.6	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405881005	DO1_170314_RP	VP_SB10	0.4-0.6	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
ES1405881009	T01_170314_RP	VP_SB10	0.4-0.6	17/03/2014	<0.5																														

	TRH												
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	10	50	100	100	50	10	10	50	50	100	100	50	
ISQG-High													
ISQG-Low													
Other Screening Values												550 <sup>#1</sup>	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527001	VR_C_SS01_0.20	VR_C_SS01	0.1-0.3	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527002	VR_C_SS01_0.50	VR_C_SS01	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527005	VR_C_SS02_0.10	VR_C_SS02	0-0.2	12/03/2014	<10	<50	130	100	230	32	32	<50	<50	180	<100	180
ES1405527006	VR_C_SS02_0.50	VR_C_SS02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527003	VR_C_SS03_0.15	VR_C_SS03	0.05-0.25	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527004	VR_C_SS03_0.40	VR_C_SS03	0.3-0.5	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	110	<100	110
ES1405672016	VR_C_SS04_0.20	VR_C_SS04	0.1-0.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672017	VR_C_SS04_0.30	VR_C_SS04	0.2-0.4	13/03/2014	<10	<50	110	110	220	<10	<10	50	50	170	<100	220
ES1405672013	VR_C_SS05_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672014	VR_C_SS05_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672015	VR_C_SS05_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672019	D05_130314_JD_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672020	D05_130314_JD_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672021	D05_130314_JD_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672004	VR_C_SS06_0.15	VR_C_SS06	0.05-0.25	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
106679-1	I01_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
106679-2	I02_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
ES1405740001	VR_C_SS07_0.20	VR_C_SS07	0.1-0.3	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405740002	D02_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405740003	VR_C_SS07_0.30	VR_C_SS07	0.2-0.4	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405740004	D01_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672007	VR_M_SS01_0.20	VR_M_SS01	0.1-0.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672008	VR_M_SS01_0.40	VR_M_SS01	0.3-0.5	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527007	VR_M_SS02_0.25	VR_M_SS02	0.15-0.35	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405527008	VR_M_SS02_0.50	VR_M_SS02	0.4-0.6	12/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672009	VR_M_SS03_0.20	VR_M_SS03	0.1-0.3	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672010	VR_M_SS03_0.45	VR_M_SS03	0.35-0.55	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672011	VR_M_SS04_0.25	VR_M_SS04	0.15-0.35	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672012	VR_M_SS04_0.50	VR_M_SS04	0.4-0.6	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672001	VR_M_SS05_0.60	VR_M_SS05	0.5-0.7	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672002	VR_M_SS05_1.0	VR_M_SS05	0.9-1.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672003	VR_M_SS05_2.0	VR_M_SS05	1.9-2.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672005	VR_M_SS06_0.30	VR_M_SS06	0.2-0.4	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405672006	VR_M_SS06_0.65	VR_M_SS06	0.55-0.75	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360004	VR_T_SS01	VR_T_SS01	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360006	D02_110314_JD	VR_T_SS01	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360010	D03_110314_JD	VR_T_SS02	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360011	I01_110314_JD	VR_T_SS02		11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360012	VR_T_SS02	VR_T_SS02	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360007	VR_T_SS03	VR_T_SS03	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360005	VR_V_SS01	VR_V_SS01	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360003	VR_V_SS02	VR_V_SS02	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360009	VR_V_SS03	VR_V_SS03	0-0.2	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1405360008	VR_W_SS01	VR_W_SS01	0-0.2	11/03/2014	<10	<50	160	100	260	<10	<10	<50	<50	220	<100	220
ES1405360013	VR_W_SS02	VR_W_SS02	0-0.2	11/03/2014	<10	<50	180	<100	180	<10	<10	<50	<50	220	<100	220
ES1405360002	VR_W_SS03	VR_W_SS03	0-0.2	11/03/2014	<10	<50	240	130	370	<10	<10	<50	<50	330	<100	330
ES1405360001	VR_W_SS04	VR_W_SS04	0-0.2	11/03/2014	<10	<50	220	<100	220	<10	<10	<50	<50	290	<100	290

Statistical Summary																
Number of Results	47	47	47	47	45	47	47	47	47	47	47	47	47	47	45	
Number of Detects	0	0	6	4	6	1	1	1	1	1	1	7	0	7		
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50				
Maximum Concentration	<25	<50	240	130	370	32	32	50	50	330	<100	330				
Average Concentration	5.3	25	66	55	55	5.9	5.9	26	26	75	50	56				
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25				
Standard Deviation	1.5	0	45	17	79	4.2	4.2	3.6	3.6	66	0	78				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0				

Comments  
 #1 National Assessment Guidelines for Dredging 2009  
 #2 ANZECC(2000) Interim Sediment Quality Guidelines

	BTEX										Metals															
	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
EQL	0.2	0.5	0.5	0.2	0.5	0.5	0.5	0.1	0.1	0.1	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5		
ISQG-High								70 <sup>#2</sup>				10 <sup>#2</sup>	370 <sup>#2</sup>		270 <sup>#2</sup>	220 <sup>#2</sup>		1 <sup>#2</sup>		52 <sup>#2</sup>				410 <sup>#2</sup>		
ISQG-Low								20 <sup>#2</sup>				1.5 <sup>#2</sup>	80 <sup>#2</sup>		65 <sup>#2</sup>	50 <sup>#2</sup>		0.15 <sup>#2</sup>		21 <sup>#2</sup>				200 <sup>#2</sup>		
Other Screening Values																								2 <sup>#3</sup>		

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
ES1405527001	VR_C_SS01_0.20	VR_C_SS01	0.1-0.3	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6.6	8.8	0.3	34	0.9	16.3	2.8	16.1	8	54.1	<0.1	8.4	4.3	5	1.1	34	44
ES1405527002	VR_C_SS01_0.50	VR_C_SS01	0.4-0.6	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6.3	5.3	0.4	36	<0.1	7.9	3.6	5.4	4.5	104	<0.1	10.2	4.7	2	<0.1	26	13.8
ES1405527005	VR_C_SS02_0.10	VR_C_SS02	0-0.2	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10.5	15	0.6	65	2	30.2	5.2	25.8	16.7	77.6	<0.1	34.1	9	26	1	93	84.4
ES1405527006	VR_C_SS02_0.50	VR_C_SS02	0.4-0.6	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	5.9	13	0.5	47	0.1	8.7	4.7	6.9	5.7	68.4	<0.1	17.8	5.8	4	<0.1	32	20.4
ES1405527003	VR_C_SS03_0.15	VR_C_SS03	0.05-0.25	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	21.1	0.4	26	0.7	18.9	2.6	14.6	12.5	39	<0.1	10	4.1	10	0.5	58	53.4
ES1405527004	VR_C_SS03_0.40	VR_C_SS03	0.3-0.5	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6.1	7.7	0.4	66	0.2	7.8	4.4	7.6	5.6	74.1	<0.1	18.5	5.6	3	<0.1	32	19.8
ES1405672016	VR_C_SS04_0.20	VR_C_SS04	0.1-0.3	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	0.8	58.4	0.8	33	0.1	6.8	0.8	3	13.4	11.9	<0.1	0.8	3.6	2	0.1	10	8.7
ES1405672017	VR_C_SS04_0.30	VR_C_SS04	0.2-0.4	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	0.7	60.1	1	6	<0.1	7.9	1.3	0.9	11.6	3.5	<0.1	<0.1	3.7	1	<0.1	10	2.4
ES1405672013	VR_C_SS05_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	5	17.7	0.3	19	<0.1	10.7	2.1	4.5	9.1	21.1	<0.1	3.7	2.7	7	<0.1	50	39.4
ES1405672014	VR_C_SS05_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	4.3	17.4	0.3	16	<0.1	9.1	2.2	4.8	8.2	19.8	<0.1	2.9	3	5	<0.1	40	30.1
ES1405672015	VR_C_SS05_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	2.4	5.5	0.2	28	<0.1	3.5	3	3.7	2.7	31.1	<0.1	9.1	3.3	2	<0.1	16	10.9
ES1405672019	DO5_130314_JD_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	4.9	21.6	0.3	16	0.1	12.4	2.3	4.8	9.5	23	<0.1	3.3	3.1	8	0.1	46	44.3
ES1405672020	DO5_130314_JD_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	4.3	16.1	0.3	14	0.1	8.8	2.2	4.8	8.2	18.9	<0.1	2.5	2.8	5	<0.1	36	30
ES1405672021	DO5_130314_JD_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	2.6	6.4	0.2	27	<0.1	3.6	3.4	3.9	2.9	37.4	<0.1	9.8	3.9	2	<0.1	15	12.4
ES1405672004	VR_C_SS06_0.15	VR_C_SS06	0.05-0.25	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	0.9	20.4	0.4	12	<0.1	4.3	1.2	6.1	5.3	4.6	<0.1	0.1	1.6	<1	<0.1	7	7.7
106679-1	T01_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	8	<1	<3	<0.4	3	2	4	6	48	<0.1	<1	3	<2	<2	7	60
106679-2	T02_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	8	<1	<3	<0.4	6	1	9	5	21	<0.1	<1	4	<2	<2	13	31
ES1405740001	VR_C_SS07_0.20	VR_C_SS07	0.1-0.3	14/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<5	<1	<2	<2	<5	<5	46	<0.1	<2	3	<5	<5	8	30
ES1405740002	DO2_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<5	<1	7	<2	12	<5	13	<0.1	<2	5	<5	<5	16	18
ES1405740003	VR_C_SS07_0.30	VR_C_SS07	0.2-0.4	14/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<5	<1	6	<2	8	<5	10	<0.1	<2	3	<5	<5	14	11
ES1405740004	DO1_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<5	<1	4	2	<5	8	30	<0.1	<2	2	<5	<5	19	55
ES1405672007	VR_M_SS01_0.20	VR_M_SS01	0.1-0.3	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	11.1	5.4	0.7	59	0.4	20.8	4.3	8.2	7.1	117	<0.1	12.8	6	8	0.3	50	27.6
ES1405672008	VR_M_SS01_0.40	VR_M_SS01	0.3-0.5	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10.3	4.9	0.5	52	0.1	9.6	4.4	6.8	5.3	150	<0.1	15.4	6.8	2	0.2	28	18.5
ES1405527007	VR_M_SS02_0.25	VR_M_SS02	0.15-0.35	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	14	5.5	0.8	46	0.4	21.6	5	8.7	7.6	136	<0.1	21.1	6.4	8	0.3	57	32.3
ES1405527008	VR_M_SS02_0.50	VR_M_SS02	0.4-0.6	12/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10.6	6.1	0.8	65	0.1	12.5	5.7	8.5	6.1	170	<0.1	23.3	8.4	3	<0.1	36	25.4
ES1405672009	VR_M_SS03_0.20	VR_M_SS03	0.1-0.3	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10.4	5.5	0.7	58	0.3	17.6	4.8	9	7.3	145	<0.1	14.1	7.3	4	0.2	46	28.2
ES1405672010	VR_M_SS03_0.45	VR_M_SS03	0.35-0.55	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	9.6	5.8	0.7	59	0.2	11.9	4.5	8.3	6.2	166	<0.1	16.5	7.9	2	0.1	34	22.3
ES1405672011	VR_M_SS04_0.25	VR_M_SS04	0.15-0.35	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	11.1	5.8	0.8	55	0.2	21.2	4.9	8.4	7.9	141	<0.1	8.6	6.8	6	0.3	52	30.6
ES1405672012	VR_M_SS04_0.50	VR_M_SS04	0.4-0.6	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10.4	5.5	0.7	54	0.1	11.3	4.6	8	6	168	<0.1	12.8	7.1	2	0.2	34	23.7
ES1405672001	VR_M_SS05_0.60	VR_M_SS05	0.5-0.7	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7.3	3.1	0.2	12	<0.1	3.9	1.4	1.8	2.7	68.5	<0.1	7	2.1	<1	0.1	13	5.8
ES1405672002	VR_M_SS05_1.0	VR_M_SS05	0.9-1.1	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8.3	2.9	0.3	22	0.1	4.8	2.1	2.7	4.3	106	<0.1	3.7	2.6	<1	<0.1	13	8.2
ES1405672003	VR_M_SS05_2.0	VR_M_SS05	1.9-2.1	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6.8	6	0.3	19	0.3	9.7	2.5	5.4	6.4	61.1	<0.1	10.3	3.7	6	0.2	40	33.2
ES1405672005	VR_M_SS06_0.30	VR_M_SS06	0.2-0.4	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7.4	3.1	0.4	20	0.1	14.8	2.7	3	3.8	64.6	<0.1	4.3	3.1	4	0.2	27	11.8
ES1405672006	VR_M_SS06_0.65	VR_M_SS06	0.55-0.75	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7.6	3.6	0.3	16	<0.1	4.3	2.3	1.8	3.4	50.8	<0.1	1.6	2.2	<1	<0.1	10	7.7
ES1405360004	VR_T_SS01	VR_T_SS01	0-0.2	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.																	





Table 4r. Sediment Summary - AEC VR  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																												
	2-(acetylamino) fluorene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B[a]P TEQ (half LOR))	Carcinogenic PAHs (as B[a]P TEQ (LOR))	Naphthalene	Chrysene	Coronene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Perylene	PAHs (Sum of total)	Carcinogenic PAHs (as B[a]P TEQ)	
EQL	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ISQG-High					0.5 <sup>#2</sup>	0.64 <sup>#2</sup>	1.1 <sup>#2</sup>	1.6 <sup>#2</sup>	1.6 <sup>#2</sup>								2.1 <sup>#2</sup>	2.8 <sup>#2</sup>		0.26 <sup>#2</sup>	5.1 <sup>#2</sup>	0.54 <sup>#2</sup>		1.5 <sup>#2</sup>	2.6 <sup>#2</sup>		45 <sup>#2</sup>		
ISQG-Low					0.016 <sup>#2</sup>	0.044 <sup>#2</sup>	0.085 <sup>#2</sup>	0.261 <sup>#2</sup>	0.43 <sup>#2</sup>								0.16 <sup>#2</sup>	0.384 <sup>#2</sup>		0.063 <sup>#2</sup>	0.6 <sup>#2</sup>	0.019 <sup>#2</sup>		0.24 <sup>#2</sup>	0.665 <sup>#2</sup>		4 <sup>#2</sup>		
Other Screening Values																													

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	2-(acetylamino) fluorene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B[a]P TEQ (half LOR))	Carcinogenic PAHs (as B[a]P TEQ (LOR))	Naphthalene	Chrysene	Coronene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Perylene	PAHs (Sum of total)	Carcinogenic PAHs (as B[a]P TEQ)				
ES1405527001	VR_C_SS01_0.20	VR_C_SS01	0.1-0.3	12/03/2014	<0.1	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-	0.01	0.01	<0.01	<0.01	0.02	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.03	0.02	<0.01	0.15	0.01			
ES1405527002	VR_C_SS01_0.50	VR_C_SS01	0.4-0.6	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	0.03	<0.01	
ES1405527005	VR_C_SS02_0.10	VR_C_SS02	0-0.2	12/03/2014	<0.1	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-	0.02	0.01	<0.01	0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.04	0.01	0.15	0.01	0.01		
ES1405527006	VR_C_SS02_0.50	VR_C_SS02	0.4-0.6	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	
ES1405527003	VR_C_SS03_0.15	VR_C_SS03	0.05-0.25	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.04	<0.01		
ES1405527004	VR_C_SS03_0.40	VR_C_SS03	0.3-0.5	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	
ES1405672016	VR_C_SS04_0.20	VR_C_SS04	0.1-0.3	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<1-0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.05	<0.01		
ES1405672017	VR_C_SS04_0.30	VR_C_SS04	0.2-0.4	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	
ES1405672013	VR_C_SS05_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	
ES1405672014	VR_C_SS05_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01	
ES1405672015	VR_C_SS05_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405672019	D05_130314_ID_0.25	VR_C_SS05	0.15-0.35	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	
ES1405672020	D05_130314_ID_0.55	VR_C_SS05	0.45-0.65	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.03	<0.01
ES1405672021	D05_130314_ID_0.80	VR_C_SS05	0.7-0.9	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
ES1405672004	VR_C_SS06_0.15	VR_C_SS06	0.05-0.25	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
106679-1	T01_140314_ID	VR_C_SS07	0.1-0.3	14/03/2014	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	-	<0.1	-	-	<0.5	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	0	-	-		
106679-2	T02_140314_ID	VR_C_SS07	0.2-0.4	14/03/2014	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	-	<0.1	-	-	<0.5	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	0	-	-		
ES1405740001	VR_C_SS07_0.20	VR_C_SS07	0.1-0.3	14/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405740002	D02_140314_ID	VR_C_SS07	0.2-0.4	14/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405740003	VR_C_SS07_0.30	VR_C_SS07	0.2-0.4	14/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405740004	D01_140314_ID	VR_C_SS07	0.1-0.3	14/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405672007	VR_M_SS01_0.20	VR_M_SS01	0.1-0.3	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01		
ES1405672008	VR_M_SS01_0.40	VR_M_SS01	0.3-0.5	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405527007	VR_M_SS02_0.25	VR_M_SS02	0.15-0.35	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01		
ES1405527008	VR_M_SS02_0.50	VR_M_SS02	0.4-0.6	12/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
ES1405672009	VR_M_SS03_0.20	VR_M_SS03	0.1-0.3	13/03/2014	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01		
ES1405672010	VR_M_SS03_0.4																																			





Table 4r. Sediment Summary - AEC VR  
Vales Point Power Station  
Project Symphony - 0237747

	MAH										Halogenated Benzenes								Halogenated Hydrocarbons			Solvents	
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromomethane	Bromomethane	Dichlorodifluoromethane	Trichlorofluoromethane	Cyclohexane
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL																							
ISQG-High																							
ISQG-Low																							
Other Screening Values																							
SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date																			
ES1405527001	VR_C_SS01_0.20	VR_C_SS01	0.1-0.3	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527002	VR_C_SS01_0.50	VR_C_SS01	0.4-0.6	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527005	VR_C_SS02_0.10	VR_C_SS02	0-0.2	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527006	VR_C_SS02_0.50	VR_C_SS02	0.4-0.6	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527003	VR_C_SS03_0.15	VR_C_SS03	0.05-0.25	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527004	VR_C_SS03_0.40	VR_C_SS03	0.3-0.5	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672016	VR_C_SS04_0.20	VR_C_SS04	0.1-0.3	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672017	VR_C_SS04_0.30	VR_C_SS04	0.2-0.4	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672013	VR_C_SS05_0.25	VR_C_SS05	0.15-0.35	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672014	VR_C_SS05_0.55	VR_C_SS05	0.45-0.65	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672015	VR_C_SS05_0.80	VR_C_SS05	0.7-0.9	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672019	D05_130314_JD_0.25	VR_C_SS05	0.15-0.35	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672020	D05_130314_JD_0.55	VR_C_SS05	0.45-0.65	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672021	D05_130314_JD_0.80	VR_C_SS05	0.7-0.9	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672004	VR_C_SS06_0.15	VR_C_SS06	0.05-0.25	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106679-1	T01_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106679-2	T02_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405740001	VR_C_SS07_0.20	VR_C_SS07	0.1-0.3	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405740002	D02_140314_JD	VR_C_SS07	0.2-0.4	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405740003	VR_C_SS07_0.30	VR_C_SS07	0.2-0.4	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405740004	D01_140314_JD	VR_C_SS07	0.1-0.3	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672007	VR_M_SS01_0.20	VR_M_SS01	0.1-0.3	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672008	VR_M_SS01_0.40	VR_M_SS01	0.3-0.5	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527007	VR_M_SS02_0.25	VR_M_SS02	0.15-0.35	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405527008	VR_M_SS02_0.50	VR_M_SS02	0.4-0.6	12/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672009	VR_M_SS03_0.20	VR_M_SS03	0.1-0.3	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672010	VR_M_SS03_0.45	VR_M_SS03	0.35-0.55	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672011	VR_M_SS04_0.25	VR_M_SS04	0.15-0.35	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672012	VR_M_SS04_0.50	VR_M_SS04	0.4-0.6	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672001	VR_M_SS05_0.60	VR_M_SS05	0.5-0.7	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672002	VR_M_SS05_1.0	VR_M_SS05	0.9-1.1	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672003	VR_M_SS05_2.0	VR_M_SS05	1.9-2.1	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672005	VR_M_SS06_0.30	VR_M_SS06	0.2-0.4	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405672006	VR_M_SS06_0.65	VR_M_SS06	0.55-0.75	13/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360004	VR_T_SS01	VR_T_SS01	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360006	D02_110314_JD	VR_T_SS01	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360010	D03_110314_JD	VR_T_SS02	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360011	T01_110314_JD	VR_T_SS02		11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360012	VR_T_SS02	VR_T_SS02	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360007	VR_T_SS03	VR_T_SS03	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360005	VR_V_SS01	VR_V_SS01	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360003	VR_V_SS02	VR_V_SS02	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360009	VR_V_SS03	VR_V_SS03	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360008	VR_W_SS01	VR_W_SS01	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360013	VR_W_SS02	VR_W_SS02	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360002	VR_W_SS03	VR_W_SS03	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405360001	VR_W_SS04	VR_W_SS04	0-0.2	11/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																							
Number of Results	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Concentration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration																							
Median Concentration																							
Standard Deviation																							
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments  
 #1 National Assessment Guidelines for Dredging 2009  
 #2 ANZECC(2000) Interim Sediment Quality Guidelines

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylenes (m & p)	Xylenes (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	0.4	1	1	1	0.1	1	1
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>	NL <sup>#9</sup>					3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>	NL <sup>#8</sup>					3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>	NL <sup>#7</sup>					3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>	NL <sup>#10</sup>					3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>	NL <sup>#3</sup>					77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>	NL <sup>#2</sup>					160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>	NL <sup>#4</sup>					NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>	62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>			1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>								
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>	20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>			430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>	900 <sup>#11</sup>		240000 <sup>#11</sup>	1500 <sup>#11</sup>	730 <sup>#11</sup>	6000 <sup>#11</sup>	40000 <sup>#11</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)																											
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215	170	1700	3300			75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600		95	185	135				95								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	7	7	5	<0.1	6	12
106955-1	I01-190314-GP	VS_SB01	0.4-0.6	19/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	7	7	5	<0.1	6	12
ES1405737005	VS_MW05_0.6	VS_MW05	0.5-0.7	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	8	<1	6	<5	5	<0.1	<2	6
ES1405737006	DUP_14032014_KB	VS_MW05	0.5-0.7	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	8	<5	6	<0.1	2	6
ES1405737007	VS_MW05_0.6	VS_MW05	0.5-0.7	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1405738015	VS_MW04_1.0	VS_MW04	0.9-1.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	14	5	<0.1	4	19
ES1405738016	VS_MW03_1.0	VS_MW03	0.9-1.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	<5	5	<0.1	2	12
ES1405738017	VS_MW03_4.0	VS_MW03	3.9-4.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	12	<1	8	<5	<5	<0.1	2	<5
ES1405962003	VS_MW05_3.5	VS_MW05	3.4-3.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	<5	<5	<0.1	<2	<5
ES1405962004	D01_180314_DB	VS_MW05	3.4-3.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	5	<5	<0.1	<2	<5
ES1405962005	VS_MW04_6.0	VS_MW04	5.9-6.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	6	<1	12	7	<5	<0.1	4	6
ES1406140002	VS_SB01_0.5	VS_SB01	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	7	<5	<0.1	3	12
ES1406140006	VS_MW02_1.0	VS_MW02	0.9-1.1	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	<2	<5
ES1406140008	VS_MW01_1.5	VS_MW01	1.4-1.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	<2	<5
ES1406280002	VS_MW01_3.0	VS_MW01	2.9-3.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1406280004	VS_MW02_4.0	VS_MW02	3.9-4.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	32	<5	<0.1	<2	<5
ES1406280005	VS_SB01_3.0	VS_SB01	2.9-3.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	<5	<5	<0.1	<2	<5

**Statistical Summary**

Number of Results	15	15	15	15	14	15	15	15	15	15	15	14	15	15	15	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	15	6	5	0	7	7
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<4	<0.4	5	<5	<5	<0.1	<2	<5
Maximum Concentration	<25	<50	<100	<100	<50	<25	<25	<50	<50	<100	<100	<50	<0.2	<1	<0.5	<0.2	<2	<1	<3	<12	<1	<3	12	<1	12	32	6	<0.1	6	19
Average Concentration	5.5	25	50	50	25	5.5	5.5	25	25	50	50	25	0.1	0.27	0.25	0.1	0.3	0.27	0.33	4.2	0.48	7.3	6.3	3.4	0.05	2.1	6.2			
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	7	2.5	2.5	0.05	1	2.5			
Standard Deviation	1.9	0	0	0	0	1.9	1.9	0	0	0	0	0	0	0.065	0	0	0.19	0.065	0.32	3.2	0.077	2.1	7.8	1.3	0	1.5	5.2			
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Comments**

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (201











	TRH											
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#9</sup>		NL <sup>#9</sup>			
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#8</sup>		NL <sup>#8</sup>			
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#7</sup>		NL <sup>#7</sup>			
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#10</sup>		NL <sup>#10</sup>			
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#3</sup>		NL <sup>#3</sup>			
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#2</sup>		NL <sup>#2</sup>			
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#4</sup>		NL <sup>#4</sup>			
Human Health - Intrusive - Direct Contact							82000 <sup>#5</sup>		62000 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>	
Human Health - Direct Contact - HIL-D							26000 <sup>#6</sup>		20000 <sup>#6</sup>	27000 <sup>#6</sup>	38000 <sup>#6</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)												
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215		170	1700	3300	
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date												
ES1406339002	VT_MW01_0.2	VT_MW01	0.1-0.3	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1406499001	VT_MW01_4.9	VT_MW01	4.8-5	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1406339001	VT_MWB3A_0.35	VT_MW03A	0.25-0.45	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1406339004	VT_MW03B_0.5	VT_MW03B	0.4-0.6	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ES1406499002	VT_MW03B_4.9	VT_MW03B	4.8-5	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50

**Statistical Summary**

Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<50	<100	<100	<50	<100	<50
Maximum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<100	<100	<50
Average Concentration	5	25	50	50	25	5	5	25	25	50	50	25	50	50	25
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	50	50	25
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Comments**

- #1 NEPM (2013) Ecological Investigation Level
- #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
- #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
- #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
- #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
- #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
- #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
- #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
- #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
- #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
- #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



Table 4t. Soil Summary - AEC VT  
Vales Point Power Station  
Project Symphony - 0237747

	BTEX						Metals																		
	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	10	1	50	1	2	2	5	5	5	0.1	2	2	5	5	5	5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND	3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				230 <sup>#9</sup>																		
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND	3 <sup>#8</sup>	NL <sup>#8</sup>	NL <sup>#8</sup>				NL <sup>#8</sup>																		
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND	3 <sup>#7</sup>	NL <sup>#7</sup>	NL <sup>#7</sup>				NL <sup>#7</sup>																		
Human Health - HSL-D - Vapour Intrusion + 4m SAND	3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>																		
Human Health - Intrusive - Vapour Intrusion 0-<2m	77 <sup>#3</sup>	NL <sup>#3</sup>	NL <sup>#3</sup>				NL <sup>#3</sup>																		
Human Health - Intrusive - Vapour Intrusion 2-<4m	160 <sup>#2</sup>	NL <sup>#2</sup>	NL <sup>#2</sup>				NL <sup>#2</sup>																		
Human Health - Intrusive - Vapour Intrusion + 4m	NL <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>																		
Human Health - Intrusive - Direct Contact	1100 <sup>#5</sup>	85000 <sup>#5</sup>	120000 <sup>#5</sup>				130000 <sup>#5</sup>																		
Human Health - Direct Contact - HIL-D	430 <sup>#6</sup>	27000 <sup>#6</sup>	99000 <sup>#6</sup>				81000 <sup>#6</sup>	3000 <sup>#11</sup>				900 <sup>#11</sup>			240000 <sup>#11</sup>	1500 <sup>#11</sup>		730 <sup>#11</sup>		6000 <sup>#11</sup>	10000 <sup>#11</sup>			400000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)								160 <sup>#1</sup>					670 <sup>#1</sup>		75 <sup>#1</sup>	1800 <sup>#1</sup>				25 <sup>#1</sup>				230 <sup>#1</sup>	
NEPM (2013) ESL - Commercial & Industrial (Coarse)	75	165	135				180																		
NEPM (2013) ESL - Commercial & Industrial (Fine)	95	185	135				95																		

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
ES1406339002	VT_MW01_0.2	VT_MW01	0.1-0.3	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	100	<1	<50	<1	23	7	102	138	274	0.1	<2	11	<5	<5	21	1430
ES1406499001	VT_MW01_4.9	VT_MW01	4.8-5	24/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	6	5	18	<5	71	<0.1	<2	15	<5	<5	23	50
ES1406339001	VT_MWB3A_0.35	VT_MW03A	0.25-0.45	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	10	<1	<50	<1	9	<2	<5	6	25	<0.1	<2	2	<5	<5	30	11
ES1406339004	VT_MW03B_0.5	VT_MW03B	0.4-0.6	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	13	<2	<5	30	13	<0.1	<2	<2	<5	<5	16	11
ES1406499002	VT_MW03B_4.9	VT_MW03B	4.8-5	24/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<2	<2	<5	<5	<5	<0.1	<2	<2	<5	<5	6	<5

Statistical Summary																												
Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	2	2	3	4	1	0	3	0	0	5	4
Minimum Concentration	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<10	<1	<50	<1	<1	<2	<2	<5	<5	<5	<5	<0.1	<2	<2	<5	<5	<5	6	<5	
Maximum Concentration	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	100	<1	<50	<1	23	7	102	138	274	0.1	<2	15	<5	<5	30	<5	<5	30	1430	
Average Concentration	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	25	0.5	25	0.5	10	3	26	36	77	0.06	1	6	2.5	2.5	19	301				
Median Concentration	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	5	0.5	25	0.5	9	1	2.5	6	25	0.05	1	2	2.5	2.5	21	11				
Standard Deviation	0	0	0	0	0	0	0	0	42	0	0	0	8.3	2.8	43	58	113	0.022	0	6.6	0	0	8.9	631				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1

- Comments**
- #1 NEPM (2013) Ecological Investigation Level
  - #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
  - #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
  - #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
  - #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
  - #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
  - #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
  - #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
  - #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
  - #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
  - #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



Table 4t. Soil Summary - AEC VT  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols															
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND											NL <sup>#9</sup>																						
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND											NL <sup>#8</sup>																						
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND											NL <sup>#7</sup>																						
Human Health - HSL-D - Vapour Intrusion + 4m SAND											NL <sup>#10</sup>																						
Human Health - Intrusive - Vapour Intrusion 0-<2m											NL <sup>#3</sup>																						
Human Health - Intrusive - Vapour Intrusion 2-<4m											NL <sup>#2</sup>																						
Human Health - Intrusive - Vapour Intrusion + 4m											NL <sup>#4</sup>																						
Human Health - Intrusive - Direct Contact											29000 <sup>#5</sup>																						
Human Health - Direct Contact - HIL-D											11000 <sup>#6</sup>								4000 <sup>#11</sup>	40 <sup>#11</sup>											660 <sup>#11</sup>	24000 <sup>#11</sup>	
NEPM (2013) EIL - Commercial/Industrial (Aged)											370 <sup>#1</sup>																						
NEPM (2013) ESL - Commercial & Industrial (Coarse)									1.4																								
NEPM (2013) ESL - Commercial & Industrial (Fine)									1.4																								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	
ES1406339002	VT_MW01_0.2	VT_MW01	0.1-0.3	21/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406499001	VT_MW01_4.9	VT_MW01	4.8-5	24/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406339001	VT_MWB3A_0.35	VT_MW03A	0.25-0.45	21/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406339004	VT_MW03B_0.5	VT_MW03B	0.4-0.6	21/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406499002	VT_MW03B_4.9	VT_MW03B	4.8-5	24/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistical Summary																																					
Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Comments**  
 #1 NEPM (2013) Ecological Investigation Level  
 #2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion  
 #3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion  
 #4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion  
 #5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact  
 #6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact  
 #7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion  
 #8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion  
 #9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion  
 #10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion  
 #11 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial



	TRH											
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C37-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C40-C40 Fraction
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	100	100	50	10	10	50	50	100	100	50
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND							260 <sup>#11</sup>		NL <sup>#11</sup>			
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND							370 <sup>#10</sup>		NL <sup>#10</sup>			
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND							630 <sup>#9</sup>		NL <sup>#9</sup>			
Human Health - HSL-D - Vapour Intrusion + 4m SAND							NL <sup>#12</sup>		NL <sup>#12</sup>			
Human Health - Intrusive - Vapour Intrusion 0-<2m							NL <sup>#5</sup>		NL <sup>#5</sup>			
Human Health - Intrusive - Vapour Intrusion 2-<4m							NL <sup>#4</sup>		NL <sup>#4</sup>			
Human Health - Intrusive - Vapour Intrusion + 4m							NL <sup>#6</sup>		NL <sup>#6</sup>			
Human Health - Intrusive - Direct Contact							82000 <sup>#7</sup>	62000 <sup>#7</sup>	85000 <sup>#7</sup>	120000 <sup>#7</sup>		
Human Health - Direct Contact - HIL-D							26000 <sup>#8</sup>	20000 <sup>#8</sup>	27000 <sup>#8</sup>	38000 <sup>#8</sup>		
NEPM (2013) EIL - Commercial/Industrial (Aged)												
NEPM (2013) ESL - Commercial & Industrial (Coarse)							215		170	1700	3300	
NEPM (2013) ESL - Commercial & Industrial (Fine)										2500	6600	
NEPM (2013) EIL - Areas of ecological significance												
NEPM (2013) ESL - Areas of ecological significance (Coarse)							125		25			
NEPM (2013) ESL - Areas of ecological significance (Fine)												

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
106077-1	T01_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
106434-1	T01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
106752-1	T01-170314-GP	VU_MW01	0.9-1.1	17/03/2014	<25	<50	<100	<100	-	<25	<25	<50	<50	<100	<100	-
ESI404115014	VU_MW20_0.1	VU_MW20	0-0.2	26/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404115015	VU_MW20_0.5	VU_MW20	0.4-0.6	26/02/2014	<10	<50	440	1040	1480	<10	<10	<50	<50	1210	430	1640
ESI404400014	VU_MW20_9.0	VU_MW20	8.9-9.1	27/02/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580009	VU_MW17_0.5	VU_MW17	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580014	VU_MW18_0.5	VU_MW18	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580015	D02_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580016	VU_MW18_1.0	VU_MW18	0.9-1.1	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404580017	VU_MW18_0.9	VU_MW18	0.8-1	3/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881004	VU_MW17_6.5	VU_MW17	6.4-6.6	5/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881005	D01_050314_SB	VU_MW17	6.4-6.6	5/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI404881022	VU_MW19_0.5	VU_MW19	0.4-0.6	5/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227021	VU_MW16_0.5	VU_MW16	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227022	D01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405227023	VU_MW16_2.0	VU_MW16	1.9-2.1	10/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405362014	VU_SB03_0.5	VU_SB03	0.4-0.6	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405362015	VU_MW03_0.5	VU_MW03	0.4-0.6	11/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405660021	VU_MW03_6.0	VU_MW03	5.9-3.1	13/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405736001	VU_SB03_2.0	VU_SB03	1.9-2.1	14/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405877001	VU_MW02_0.1	VU_MW02	0-0.2	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405879014	VU_MW01_0.5	VU_MW01	0.4-0.6	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405879015	VU_MW01_1.5	VU_MW01	1.4-1.6	17/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	120	<100	120
ESI405963001	VU_MW04_1.5	VU_MW04	1.4-1.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405963002	VU_MW09_0.2	VU_MW09	0.1-0.3	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405963003	VU_MW08_0.5	VU_MW08	0.4-0.6	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405963004	VU_MW10_1.0	VU_MW10	0.9-1.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI405963005	D01_180314_GP	VU_MW10	0.9-1.1	18/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141006	VU_MW05_0.5	VU_MW05	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141007	VU_MW07_0.5	VU_MW07	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406141008	VU_MW06_0.5	VU_MW06	0.4-0.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406142001	VU_MW08_1.5	VU_MW08	1.4-1.6	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406142002	VU_MW08_3.8	VU_MW08	3.7-3.9	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406142003	VU_MW04_8.8	VU_MW04	8.7-8.9	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406142004	VU_MW09_3.9	VU_MW09	3.8-4	19/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406275002	VU_MW13_1.0	VU_MW13	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406275004	VU_SB02_1.0	VU_SB02	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406277001	VU_MW14_3.3-3.7	VU_MW14	3.2-3.8	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406277003	D01_21.3.14_WG	VU_MW14	3.2-3.8	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406278010	VU_MW14_1.0	VU_MW14	0.9-1.1	20/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406279001	VU_MW05_2.7	VU_MW05	2.6-2.8	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406279002	VU_MW07_2.5	VU_MW07	2.4-2.6	21/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406497004	VU_MW12_1.0	VU_MW12	0.9-1.1	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406498004	VU_MW15_4.0	VU_MW15	3.9-4.1	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406499003	VU_MW13_3.3	VU_MW13	3.2-3.4	24/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406590034	VU_MW12_3.2	VU_MW12	3.1-3.3	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406590035	VU_MW12_4.1	VU_MW12	4-4.2	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406590036	VU_MW10_2.2	VU_MW10	2.1-2.3	25/03/2014	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50
ESI406762001	VU_MW10_5.5	VU_MW10	5.4-5.6	26/03/2014	<10											

	BTEX							Metals							
	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.5	0.5	0.2	0.5	0.5	0.5	4	0.4	1	1	1	0.1	1	1
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND	3 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				230 <sup>#11</sup>								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND	3 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND	3 <sup>#9</sup>	NL <sup>#9</sup>	NL <sup>#9</sup>				NL <sup>#9</sup>								
Human Health - HSL-D - Vapour Intrusion + 4m SAND	3 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>								
Human Health - Intrusive - Vapour Intrusion 0-<2m	77 <sup>#5</sup>	NL <sup>#5</sup>	NL <sup>#5</sup>				NL <sup>#5</sup>								
Human Health - Intrusive - Vapour Intrusion 2-<4m	160 <sup>#4</sup>	NL <sup>#4</sup>	NL <sup>#4</sup>				NL <sup>#4</sup>								
Human Health - Intrusive - Vapour Intrusion + 4m	NL <sup>#6</sup>	NL <sup>#6</sup>	NL <sup>#6</sup>				NL <sup>#6</sup>								
Human Health - Intrusive - Direct Contact	1100 <sup>#7</sup>	85000 <sup>#7</sup>	120000 <sup>#7</sup>				130000 <sup>#7</sup>								
Human Health - Direct Contact - HIL-D	430 <sup>#8</sup>	27000 <sup>#8</sup>	99000 <sup>#8</sup>				81000 <sup>#8</sup>	3000 <sup>#14</sup>	900 <sup>#14</sup>		240000 <sup>#14</sup>	1500 <sup>#14</sup>	730 <sup>#14</sup>	6000 <sup>#14</sup>	400000 <sup>#14</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)								160 <sup>#1</sup>		670 <sup>#1</sup>	75 <sup>#1</sup>	1800 <sup>#1</sup>		25 <sup>#1</sup>	230 <sup>#1</sup>
NEPM (2013) ESL - Commercial & Industrial (Coarse)	75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)	95	185	135				95								
NEPM (2013) EIL - Areas of ecological significance								40 <sup>#3</sup>		140 <sup>#3</sup>	20 <sup>#3</sup>	470 <sup>#3</sup>		4 <sup>#3</sup>	40 <sup>#3</sup>
NEPM (2013) ESL - Areas of ecological significance (Coarse)	10	1.5	10				10								
NEPM (2013) ESL - Areas of ecological significance (Fine)	10	40	65				1.6								

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
106077-1	T01_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	5	<1	5	<0.1	<1	3
106434-1	T01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	5	<1	2	<0.1	<1	3
106752-1	T01-170314-GP	VU_MW01	0.9-1.1	17/03/2014	<0.2	<1	<0.5	-	<2	<1	<3	<4	<0.4	7	5	6	<0.1	<1	4
ES1404115014	VU_MW20_0.1	VU_MW20	0-0.2	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	6	8	<0.1	<2	13
ES1404115015	VU_MW20_0.5	VU_MW20	0.4-0.6	26/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	10	<1	5	7	11	<0.1	<2	19
ES1404400014	VU_MW20_9.0	VU_MW20	8.9-9.1	27/02/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	19	5	5	<0.1	<2	<5
ES1404580009	VU_MW17_0.5	VU_MW17	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5
ES1404580014	VU_MW18_0.5	VU_MW18	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	6	<0.1	<2	<5
ES1404580015	D02_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	6	<0.1	<2	<5
ES1404580016	VU_MW18_1.0	VU_MW18	0.9-1.1	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	21	<5	11	<0.1	<2	6
ES1404580017	VU_MW18_0.9	VU_MW18	0.8-1	3/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	20	<5	9	<0.1	<2	10
ES1404881004	VU_MW17_6.5	VU_MW17	6.4-6.6	5/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	7	8	<0.1	8	39
ES1404881005	D01_050314_SB	VU_MW17	6.4-6.6	5/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	7	8	<0.1	8	35
ES1404881022	VU_MW19_0.5	VU_MW19	0.4-0.6	5/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	7	<0.1	<2	<5
ES1405227021	VU_MW16_0.5	VU_MW16	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	<5
ES1405227022	D01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1405227023	VU_MW16_2.0	VU_MW16	1.9-2.1	10/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
ES1405362014	VU_SB03_0.5	VU_SB03	0.4-0.6	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	8	5	<0.1	6	24
ES1405362015	VU_MW03_0.5	VU_MW03	0.4-0.6	11/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	11	7	<0.1	<2	49
ES1405660021	VU_MW03_6.0	VU_MW03	5.9-3.1	13/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	<5	5	<0.1	<2	<5
ES1405736001	VU_SB03_2.0	VU_SB03	1.9-2.1	14/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	6	<5	<0.1	<2	7
ES1405877001	VU_MW02_0.1	VU_MW02	0-0.2	17/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
ES1405879014	VU_MW01_0.5	VU_MW01	0.4-0.6	17/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	5	<5	<0.1	<2	43
ES1405879015	VU_MW01_1.5	VU_MW01	1.4-1.6	17/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	41
ES1405963001	VU_MW04_1.5	VU_MW04	1.4-1.6	18/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	<5	<5	<0.1	<2	<5
ES1405963002	VU_MW09_0.2	VU_MW09	0.1-0.3	18/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
ES1405963003	VU_MW08_0.5	VU_MW08	0.4-0.6	18/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	<5
ES1405963004	VU_MW10_1.0	VU_MW10	0.9-1.1	18/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	29	<5	11	<0.1	<2	<5
ES1405963005	D01_180314_GP	VU_MW10	0.9-1.1	18/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	15	<5	7	<0.1	<2	<5
ES1406141006	VU_MW05_0.5	VU_MW05	0.4-0.6	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	13	<5	<5	<0.1	<2	<5
ES1406141007	VU_MW07_0.5	VU_MW07	0.4-0.6	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	22	<5	<5	<0.1	4	8
ES1406141008	VU_MW06_0.5	VU_MW06	0.4-0.6	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	<5	<5	<0.1	<2	<5
ES1406142001	VU_MW08_1.5	VU_MW08	1.4-1.6	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	<5	44	<0.1	<2	<5
ES1406142002	VU_MW08_3.8	VU_MW08	3.7-3.9	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	6	6	<0.1	<2	10
ES1406142003	VU_MW04_8.8	VU_MW04	8.7-8.9	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	27	6	<0.1	12	55
ES1406142004	VU_MW09_3.9	VU_MW09	3.8-4	19/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	4	6	24	<0.1	3	17
ES1406275002	VU_MW13_1.0	VU_MW13	0.9-1.1	20/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	22	<5	<5	<0.1	<2	<5
ES1406275004	VU_SB02_1.0	VU_SB02	0.9-1.1	20/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	10	<5	6	<0.1	<2	<5
ES1406277001	VU_MW14_3.3-3.7	VU_MW14	3.2-3.8	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	48
ES1406277003	D01_21.3.14_WG	VU_MW14	3.2-3.8	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	2	51
ES1406278010	VU_MW14_1.0	VU_MW14	0.9-1.1	20/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	27	<5	8	<0.1	<2	<5
ES1406279001	VU_MW05_2.7	VU_MW05	2.6-2.8	21/03/2014	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	17	12	6	<0.1	4	19



	PAH														Carcinogenic PAHs (as BaP TEQ)	Carcinogenic PAHs (as BaP TEQ)						
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene			Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
EQL	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND												NL <sup>#11</sup>										
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND												NL <sup>#10</sup>										
Human Health - HSL-D - Vapour Intrusion 2-<4m SAND												NL <sup>#9</sup>										
Human Health - HSL-D - Vapour Intrusion + 4m SAND												NL <sup>#12</sup>										
Human Health - Intrusive - Vapour Intrusion 0-<2m												NL <sup>#5</sup>										
Human Health - Intrusive - Vapour Intrusion 2-<4m												NL <sup>#4</sup>										
Human Health - Intrusive - Vapour Intrusion + 4m												NL <sup>#6</sup>										
Human Health - Intrusive - Direct Contact												29000 <sup>#7</sup>										
Human Health - Direct Contact - HIL-D												11000 <sup>#8</sup>									4000 <sup>#14</sup>	40 <sup>#14</sup>
NEPM (2013) EIL - Commercial/Industrial (Aged)												370 <sup>#1</sup>										
NEPM (2013) ESL - Commercial & Industrial (Coarse)					1.4																	
NEPM (2013) ESL - Commercial & Industrial (Fine)					1.4																	
NEPM (2013) EIL - Areas of ecological significance												370 <sup>#1</sup>										
NEPM (2013) ESL - Areas of ecological significance (Coarse)					0.7																	
NEPM (2013) ESL - Areas of ecological significance (Fine)					0.7																	

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	
106077-1	T01_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-
106434-1	T01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	-
106752-1	T01-170314-GP	VU_MW01	0.9-1.1	17/03/2014	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	-	<0.1	-	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0	-
ES1404115014	VU_MW20_0.1	VU_MW20	0.0-2	26/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404115015	VU_MW20_0.5	VU_MW20	0.4-0.6	26/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404400014	VU_MW20_9.0	VU_MW20	8.9-9.1	27/02/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404580009	VU_MW17_0.5	VU_MW17	0.4-0.6	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404580014	VU_MW18_0.5	VU_MW18	0.4-0.6	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404580015	D02_030314_RP	VU_MW18	0.4-0.6	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404580016	VU_MW18_1.0	VU_MW18	0.9-1.1	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404580017	VU_MW18_0.9	VU_MW18	0.8-1	3/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404881004	VU_MW17_6.5	VU_MW17	6.4-6.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404881005	D01_050314_SB	VU_MW17	6.4-6.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1404881022	VU_MW19_0.5	VU_MW19	0.4-0.6	5/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227021	VU_MW16_0.5	VU_MW16	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227022	D01_100314_CM	VU_MW16	0.4-0.6	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405227023	VU_MW16_2.0	VU_MW16	1.9-2.1	10/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362014	VU_SB03_0.5	VU_SB03	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405362015	VU_MW03_0.5	VU_MW03	0.4-0.6	11/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405660021	VU_MW03_6.0	VU_MW03	5.9-3.1	13/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405736001	VU_SB03_2.0	VU_SB03	1.9-2.1	14/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405877001	VU_MW02_0.1	VU_MW02	0.0-2	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879014	VU_MW01_0.5	VU_MW01	0.4-0.6	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405879015	VU_MW01_1.5	VU_MW01	1.4-1.6	17/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405963001	VU_MW04_1.5	VU_MW04	1.4-1.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405963002	VU_MW09_0.2	VU_MW09	0.1-0.3	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405963003	VU_MW08_0.5	VU_MW08	0.4-0.6	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405963004	VU_MW10_1.0	VU_MW10	0.9-1.1	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1405963005	D01_180314_GP	VU_MW10	0.9-1.1	18/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406141006	VU_MW05_0.5	VU_MW05	0.4-0.6	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406141007	VU_MW07_0.5	VU_MW07	0.4-0.6	19/03/2014	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES1406141008	VU_MW06_0.5	VU_MW06	0.4-0.6	19/03/2014	<0.5																						







Table 5a. Groundwater Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals																			
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Thallium (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	20	50	100	50	50	20	20	100	100	100	100	1	2	2	1	2	2	2	1	1	1	1	0.1	1	1	1	1	1	0.1	1	1	1	10	1	10	5	
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>		NL <sup>#12</sup>			4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>																		NL <sup>#12</sup>	
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>		NL <sup>#11</sup>			5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>																			NL <sup>#11</sup>
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>		NL <sup>#10</sup>			5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>																			NL <sup>#10</sup>
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>		NL <sup>#13</sup>			NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>																			NL <sup>#13</sup>
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>		60	4000	2 <sup>#14</sup>	50 <sup>#14</sup>		2000 <sup>#14</sup>	10 <sup>#14</sup>	500	1 <sup>#4</sup>	50	20 <sup>#14</sup>	10 <sup>#14</sup>					
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>		600	40000	20 <sup>#9</sup>	500 <sup>#9</sup>		20000 <sup>#9</sup>	100 <sup>#9</sup>	5000	10 <sup>#9</sup>	500	200 <sup>#9</sup>	100 <sup>#9</sup>					
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	7100 <sup>#6</sup>		5100 <sup>#17</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1 <sup>#16</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	27000 <sup>#3</sup>	70 <sup>#16</sup>	3 <sup>#15</sup>		100 <sup>#16</sup>	15 <sup>#16</sup>			

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	2	<1	-	<0.1	-	6	-	-	-	32
ES1406590029	VA_MW01_250314	VA_MW01	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	2	<1	-	<0.1	-	6	-	-	-	32
ES1406590026	VA_MW02_250314	VA_MW02	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	2	<1	-	<0.1	-	<1	-	-	-	19
ES1406590027	D02_250314_SB	VA_MW02	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	<1	<1	-	<0.1	-	<1	-	-	-	9
ES1406590028	T01_250314_SB	VA_MW02	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	<1	<1	-	<0.1	-	<1	-	-	-	6
ES1406761003	VA_MW03_260314	VA_MW03	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	2	<1	-	<0.1	-	2	-	-	-	26
ES1406761016	VA_MW04_260314	VA_MW04	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	55	<1	60	<0.1	<1	3	2	12	196	<0.1	<1	2	<10	<1	<10	17
ES1406761017	VA_MW05_260314	VA_MW05	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	404	<1	<50	<0.1	<1	11	15	16	262	<0.1	<1	21	<10	<1	<10	76
ES1407023004	VA_MW06_280314	VA_MW06	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	<1	<1	-	<0.1	-	3	-	-	-	13
ES1407023005	D04_280314_SO	VA_MW06	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	<1	<1	-	<0.1	-	3	-	-	-	21

Statistical Summary

Number of Results	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	2	2	2	2	9	9	2	9	9	2	9	2	9	2	9		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	2	5	2	2	0	0	6	0	0	0	9
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	55	<1	<50	<0.1	<1	3	<1	<1	196	<0.1	<1	<1	<10	<1	<10	6	
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	404	<1	60	<0.1	<1	11	15	16	262	<0.1	<1	21	<10	<1	<10	76	
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5				0.05	0.5		2.8	3.5		0.05		4.3			24		
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	229.5	0.5	42.5	0.05	0.5	7	2	0.5	229	0.05	0.5	2	5	0.5	5	19	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				4.6	6		0		6.5			21					
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	2	0	0	0	0	1	2	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	2	0	0	0	0	1	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5a. Groundwater Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols												
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,6,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m																														
Vapour Intrusion - Commercial Worker - 4-<8 m																														
Vapour Intrusion - Commercial Worker - 8 m+																														
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																														
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590029	VA_MW01_250314	VA_MW01	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590026	VA_MW02_250314	VA_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590027	D02_250314_SB	VA_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590028	T01_250314_SB	VA_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761003	VA_MW03_260314	VA_MW03	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761016	VA_MW04_260314	VA_MW04	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761017	VA_MW05_260314	VA_MW05	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407023004	VA_MW06_280314	VA_MW06	28/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407023005	D04_280314_SO	VA_MW06	28/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
Number of Results	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Detects	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Maximum Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Median Concentration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	9	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 5a. Groundwater Summary - AEC VA  
Vales Point Power Station  
Project Symphony - 0237747

	Halogenated Benzenes								Halogenated Hydrocarbons					Solvents					Polychlorinated Biphenyls	PFOS/PFOA			
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	6:2 Fluorotelomer Sulfonate (6:2 FS)	Perfluorooctanoate	PFOS
EQL	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	5	50	1	0.1	0.02	0.02	
Vapour Intrusion - Commercial Worker - 2-<4 m																							
Vapour Intrusion - Commercial Worker - 4-<8 m																							
Vapour Intrusion - Commercial Worker - 8 m+																							
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																							
Drinking Water	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>	40 <sup>#4</sup>					1 <sup>#14</sup>	1 <sup>#14</sup>												0.4 <sup>#2</sup>	0.2 <sup>#2</sup>
Recreational	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>	400 <sup>#9</sup>					10 <sup>#9</sup>	10 <sup>#9</sup>													
Ecological		80 <sup>#16</sup>																					7.2 <sup>#5</sup>

SampleCode	Field_ID	LocCode	Sample Date	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	6:2 Fluorotelomer Sulfonate (6:2 FS)	Perfluorooctanoate	PFOS
ES1406590029	VA_MW01_250314	VA_MW01	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406590026	VA_MW02_250314	VA_MW02	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406590027	D02_250314_SB	VA_MW02	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406590028	T01_250314_SB	VA_MW02	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406761003	VA_MW03_260314	VA_MW03	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406761016	VA_MW04_260314	VA_MW04	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406761017	VA_MW05_260314	VA_MW05	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407023004	VA_MW06_280314	VA_MW06	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1407023005	D04_280314_SO	VA_MW06	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02

Statistical Summary

Number of Results	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02		
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02		
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	25	25	25	25	25	25	2.5	25	0.5	0.05	0.01	0.01
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	25	25	25	25	25	25	2.5	25	0.5	0.05	0.01	0.01	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5b. Groundwater Summary - AEC VB  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>					4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>								
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>					5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>								
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>					5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>								
Drinking Water													1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>	
Recreational													10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>	
Ecological													700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sampled_Date-Time	<20	<50	410	<50	410	<20	<20	150	150	290	<100	440	<1	<2	<2	<1	<2	<2	<2	2	0.1	<1	11	2	<0.1	24	127
ES1406590024	VB_MW01_250314	VB_MW01	25/03/2014	<20	<50	410	<50	410	<20	<20	150	150	290	<100	440	<1	<2	<2	<1	<2	<2	2	0.1	<1	11	2	<0.1	24	127	
ES1406590023	VB_MW02_250314	VB_MW02	25/03/2014	20	<50	<100	<50	<50	20	20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	2	<0.1	<1	2	<1	<0.1	3	21	
ES1411772002	D01_270514	VB_MW03	27/05/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	-	-	-	-	-	-	-	-	
ES1411772003	VB_MW03	VB_MW03	27/05/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	1	0.2	<1	<1	<1	<0.1	18	40	
ES1407301001	VB_MW05_010414	VB_MW05	1/04/2014	70	<50	<100	<50	<50	80	80	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<1	0.1	<1	5	<1	<0.1	10	40	
ES1407301009	D01_010414_SN	VB_MW05	1/04/2014	80	<50	<100	<50	<50	100	100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<1	<0.1	<1	<1	<1	<0.1	6	<5	

Statistical Summary

Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5
Number of Detects	3	0	1	0	1	3	3	1	1	1	0	1	0	0	0	0	0	0	0	0	0	3	3	0	3	1	0	5	4
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<1	<0.1	<1	<1	<1	<0.1	3	<5
Minimum Detect	20	ND	410	ND	410	20	20	150	150	290	ND	440	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	0.1	ND	2	2	ND	3	21
Maximum Concentration	80	<50	410	<50	410	100	100	150	150	290	<100	440	<1	<2	<2	<1	<2	<2	<2	<2	<2	2	0.2	<1	11	2	<0.1	24	127
Maximum Detect	80	ND	410	ND	410	100	100	150	150	290	ND	440	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	0.2	ND	11	2	ND	24	127
Average Concentration	33	25	110	25	89	38	38	67	67	90	50	115	0.5	1	1	1	0.5	1	1	1	1	1.2	0.1	0.5	3.8	0.8	0.05	12	46
Median Concentration	15	25	50	25	25	15	15	50	50	50	50	50	0.5	1	1	1	0.5	1	1	1	1	1	0.1	0.5	2	0.5	0.05	10	40
Standard Deviation	33	0	147	0	157	41	41	41	41	98	0	159	0	0	0	0	0	0	0	0	0	0.76	0.061	0	4.4	0.67	0	8.7	48
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	4
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	4

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5b. Groundwater Summary - AEC VB  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																Phenols													
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(e) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,5-dimethylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>				300 <sup>#4</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>				3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sampled_Date-Time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
ES1406590024	VB_MW01_250314	VB_MW01	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590023	VB_MW02_250314	VB_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1411772002	D01_270514	VB_MW03	27/05/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1411772003	VB_MW03	VB_MW03	27/05/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407301001	VB_MW05_010414	VB_MW05	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407301009	D01_010414_SN	VB_MW05	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistical Summary

Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.9	
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.5	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.5	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1.4	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	
Number of Guideline Exceedances	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5b. Groundwater Summary - AEC VB  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																											VOCs						
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene		
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	5	5	50	5	5	5		
Vapour Intrusion - Commercial Worker - 2-<4 m																																		
Vapour Intrusion - Commercial Worker - 4-<8 m																																		
Vapour Intrusion - Commercial Worker - 8 m+																																		
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																		
Drinking Water						30 <sup>#14</sup>				3 <sup>#14</sup>						190 <sup>#4</sup>			1910 <sup>#4</sup>	4 <sup>#7</sup>	60 <sup>#8</sup>			0.7 <sup>#14</sup>	20 <sup>#1</sup>	50 <sup>#14</sup>	60 <sup>#8</sup>		0.3 <sup>#14</sup>					
Recreational						300 <sup>#9</sup>				30 <sup>#9</sup>						1900 <sup>#9</sup>			19100 <sup>#9</sup>	40 <sup>#9</sup>	600 <sup>#9</sup>			7 <sup>#9</sup>	200 <sup>#9</sup>	500 <sup>#9</sup>	600 <sup>#9</sup>		3 <sup>#9</sup>					
Ecological				1900 <sup>#16</sup>																														

SampleCode	Field_ID	LocCode	Sampled_Date-Time																																
ES1406590024	VB_MW01_250314	VB_MW01	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5
ES1406590023	VB_MW02_250314	VB_MW02	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	14	<5	<5	5	11	<5	<5	<50	<5	<5	<5	<5	
ES1411772002	D01_270514	VB_MW03	27/05/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	
ES1411772003	VB_MW03	VB_MW03	27/05/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	
ES1407301001	VB_MW05_010414	VB_MW05	1/04/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407301009	D01_010414_SN	VB_MW05	1/04/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Number of Results	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	5	11	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	14	<5	<5	<5	5	11	<5	<5	<50	<5	<5	<5	<5	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	5	11	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.4	2.5	2.5	2.5	3.1	4.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.8	0	0	0	1.3	4.3	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	4	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5c. Groundwater Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals																			
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Thallium (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	1	2	2	1	2	2	2	0.2	0.5	0.1	5	0.05	0.2	0.1	0.5	0.1	0.5	0.1	0.1	0.5	0.2	0.02	0.2	0.2	1	
Vapour Intrusion - Commercial Worker - 2-<4 m							NL <sup>#12</sup>		NL <sup>#12</sup>			4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>																			
Vapour Intrusion - Commercial Worker - 4-<8 m							NL <sup>#11</sup>		NL <sup>#11</sup>			5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>																			
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>		NL <sup>#10</sup>			5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>		NL <sup>#13</sup>			NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>																			
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>		60	4000	2 <sup>#14</sup>	50 <sup>#14</sup>		2000 <sup>#14</sup>	10 <sup>#14</sup>	500	1 <sup>#4</sup>	50	20 <sup>#14</sup>	10 <sup>#14</sup>					
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>		600	40000	20 <sup>#9</sup>	500 <sup>#9</sup>		20000 <sup>#9</sup>	100 <sup>#9</sup>	5000	10 <sup>#9</sup>	500	200 <sup>#9</sup>	100 <sup>#9</sup>					
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	7100 <sup>#6</sup>		5100 <sup>#17</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1 <sup>#16</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	27000 <sup>#3</sup>	70 <sup>#16</sup>	3 <sup>#15</sup>		100 <sup>#16</sup>	15 <sup>#16</sup>			

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	87	<1	80	<0.1	<1	5	7	<1	183	<0.1	<1	4	<10	<1	<10	40
ES1406761020	VC_MW01_260314	VC_MW01	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	87	<1	80	<0.1	<1	5	7	<1	183	<0.1	<1	4	<10	<1	<10	40
ES1406761018	VC_MW02_260314	VC_MW02	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1.2	124	<0.1	433	<0.05	0.3	2	<0.5	0.1	393	<0.1	0.2	2.4	0.5	<0.02	0.5	16
ES1407023003	VC_MW04_280314	VC_MW04	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	-	-	-	<0.1	<1	-	3	<1	-	<0.1	-	2	-	-	-	-	29
ES1406761019	VC_MW05_260314	VC_MW05	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	43	<1	130	<0.1	<1	2	2	<1	160	<0.1	<1	<1	<10	<1	<10	12	

Statistical Summary

Number of Results	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4	4	3	4	4	3	4	3	4	3	4	3	3	3	4		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	3	0	1	3	3	1	3	0	1	3	1	0	1	4			
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	43	<0.1	80	<0.05	0.3	2	<0.5	0.1	160	<0.1	0.2	<1	0.5	<0.02	0.5	12	
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1.2	124	<1	433	<0.1	<1	5	7	<1	393	<0.1	<1	4	<10	<1	<10	40	
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.68	85	0.35	214	0.044	0.45	3	3.1	0.4	245	0.05	0.4	2.2	3.5	0.34	3.5	24	
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	87	0.5	130	0.05	0.5	2	2.5	0.5	183	0.05	0.5	2.2	5	0.5	5	22.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.35	41	0.26	191	0.013	0.1	1.7	2.9	0.2	128	0	0.17	1.4	2.6	0.28	2.6	13	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting



Table 5c. Groundwater Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 023774

	PAH																				Phenols																	
	2-(acetylamino) fluorene	2-methyl/naphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Coronene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Perylene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-84-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	1	1	1	1	1	1	1	1	1	2	1	2	1	
Vapour Intrusion - Commercial Worker - 2-<4 m														NL <sup>#12</sup>																								
Vapour Intrusion - Commercial Worker - 4-<8 m														NL <sup>#11</sup>																								
Vapour Intrusion - Commercial Worker - 8 m+														NL <sup>#10</sup>																								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+														NL <sup>#13</sup>																								
Drinking Water									0.01 <sup>#4</sup>															0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>		
Recreational									0.1 <sup>#9</sup>															0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>		
Ecological													70 <sup>#16</sup>																						22 <sup>#16</sup>	400 <sup>#16</sup>		

SampleCode	Field_ID	LocCode	Sample Date																																				
ES1406761020	VC_MW01_260314	VC_MW01	26/03/2014	-	-	-	-	<1	<1	<1	<1	<0.5	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1406761018	VC_MW02_260314	VC_MW02	26/03/2014	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1407023003	VC_MW04_280314	VC_MW04	28/03/2014	-	-	-	-	<1	<1	<1	<1	<0.5	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1406761019	VC_MW05_260314	VC_MW05	26/03/2014	-	-	-	-	<1	<1	<1	<1	<0.5	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	

Statistical Summary	1	1	1	1	4	4	4	4	4	4	1	4	4	4	4	1	4	4	4	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Results	1	1	1	1	4	4	4	4	4	4	1	4	4	4	4	1	4	4	4	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<1	<1	<1	<1	<0.5	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Average Concentration					0.39	0.39	0.39	0.39	0.19	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.19	0.19	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Median Concentration	0.05	0.05	0.05	0.05	0.5	0.5	0.5	0.5	0.25	0.5	0.05	0.5	0.5	0.5	0.5	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.05	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation					0.23	0.23	0.23	0.23	0.11	0.23		0.23	0.23	0.23	0.23		0.23	0.23	0.23	0.23	0.23	0.23	0.11	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



Table 5c. Groundwater Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																								VOCs			MAH																			
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene						
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	5	5	50	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
Vapour Intrusion - Commercial Worker - 2-<4 m																																														NL <sup>#12</sup>	
Vapour Intrusion - Commercial Worker - 4-<8 m																																															NL <sup>#11</sup>
Vapour Intrusion - Commercial Worker - 8 m+																																															NL <sup>#10</sup>
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																															
Drinking Water																																															30 <sup>#14</sup>
Recreational																																															300 <sup>#9</sup>
Ecological																																															

SampleCode	Field_ID	LocCode	Sample Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
ES1406761020	VC_MW01_260314	VC_MW01	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ES1406761018	VC_MW02_260314	VC_MW02	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407023003	VC_MW04_280314	VC_MW04	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406761019	VC_MW05_260314	VC_MW05	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Average Concentration																																																								
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
Standard Deviation																																																								
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 5c. Groundwater Summary - AEC VC  
Vales Point Power Station  
Project Symphony - 0237747

	Halogenated Benzenes								Halogenated Hydrocarbons					Solvents				Polychlorinated Biphenyls	PFOS/PFOA				
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	Perfluorooctanoate	PFOS
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	5	50	1	0.1	0.02	0.02	
Vapour Intrusion - Commercial Worker - 2-<4 m																							
Vapour Intrusion - Commercial Worker - 4-<8 m																							
Vapour Intrusion - Commercial Worker - 8 m+																							
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																							
Drinking Water	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>		40 <sup>#4</sup>					1 <sup>#14</sup>	1 <sup>#14</sup>											0.4 <sup>#2</sup>	0.2 <sup>#2</sup>
Recreational	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>		400 <sup>#9</sup>					10 <sup>#9</sup>	10 <sup>#9</sup>												
Ecological		80 <sup>#16</sup>																					7.2 <sup>#5</sup>

SampleCode	Field_ID	LocCode	Sample Date																					
ES1406761020	VC_MW01_260314	VC_MW01	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1406761018	VC_MW02_260314	VC_MW02	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1407023003	VC_MW04_280314	VC_MW04	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
ES1406761019	VC_MW05_260314	VC_MW05	26/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Statistical Summary

Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.1	<0.02	<0.02
Average Concentration																							
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	2.5	25	0.5	0.05	0.01	0.01	
Standard Deviation																							
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5d. Groundwater Summary -AEC VD  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
EQL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Vapour Intrusion - Commercial Worker - 2-<4 m						6200 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>									
Vapour Intrusion - Commercial Worker - 4-<8 m						6300 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>									
Vapour Intrusion - Commercial Worker - 8 m+						6500 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>									
Vapour Intrusion - Intrusive Maint Worker 2m -8m+						NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>									
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>		
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>		
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.2	<1	5	<1	<0.1	20	56
ES1407201006	VD_MW01_310314	VD_MW01	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.2	<1	5	<1	<0.1	20	56
ES1406761001	VD_MW02	VD_MW02	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.2	<1	7	2	<0.1	24	99
ES1406761002	VD_MW03	VD_MW03	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.4	<1	5	2	<0.1	28	89
ES1406907005	VD_MW04_270314	VD_MW04	27/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.1	<1	4	<1	<0.1	20	54
ES1407201005	VD_MW05_310314	VD_MW05	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	1	<1	<0.1	19	28

Statistical Summary

Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	5	2	0	5	5
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	1	<1	<0.1	19	28
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	0.4	<1	7	2	<0.1	28	99
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.7	0.19	0.5	4.4	1.1	0.05	22	65
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	0.2	0.5	5	0.5	0.05	20	56
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.27	0.13	0	2.2	0.82	0	3.8	29
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	5
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	5

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting



Table 5d. Groundwater Summary -AEC VD  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																Phenols														
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	
FQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m										NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m										NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+										NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+										NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>		
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>		
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>		

SampleCode	Field_ID	LocCode	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
ES1407201006	VD_MW01_310314	VD_MW01	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761001	VD_MW02	VD_MW02	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761002	VD_MW03	VD_MW03	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	4.3
ES1406907005	VD_MW04_270314	VD_MW04	27/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201005	VD_MW05_310314	VD_MW05	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary

Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	4.3	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	1.3	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7	
Number of Guideline Exceedances	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbc
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5d. Groundwater Summary -AEC VD  
Vales Point Power Station  
Project Symphony - 0237747

	Halogenated Benzenes								Halogenated Hydrocarbons					Solvents					
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	5	50	
Vapour Intrusion - Commercial Worker - 2-<4 m																			
Vapour Intrusion - Commercial Worker - 4-<8 m																			
Vapour Intrusion - Commercial Worker - 8 m+																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																			
Drinking Water	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>		40 <sup>#4</sup>					1 <sup>#14</sup>	1 <sup>#14</sup>								
Recreational	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>		400 <sup>#9</sup>					10 <sup>#9</sup>	10 <sup>#9</sup>								
Ecological		80 <sup>#16</sup>																	

SampleCode	Field_ID	LocCode	Sample Date																	
ES1407201006	VD_MW01_310314	VD_MW01	31/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406761001	VD_MW02	VD_MW02	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406761002	VD_MW03	VD_MW03	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406907005	VD_MW04_270314	VD_MW04	27/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1407201005	VD_MW05_310314	VD_MW05	31/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Statistical Summary**

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	25	2.5	25
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	25	2.5	25
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Comments**

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5e. Groundwater Summary - AEC VE  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>									
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>									
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>									
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>									
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>		
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>		
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	0.2	<1	5	6	<0.1	31	93
ES1407023001	VE_MW02_280314	VE_MW02	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	0.2	<1	5	6	<0.1	31	93
ES1407023002	VE_MW03_280314	VE_MW03	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	5	<1	<0.1	6	37

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	2	2
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	5	<1	<0.1	6	37	
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	0.2	<1	5	6	<0.1	31	93	
Average Concentration																														
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.75	0.125	0.5	5	3.25	0.05	18.5	65	
Standard Deviation																														
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	2
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	2

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting





Table 5e. Groundwater Summary - AEC VE  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																										VOCs								
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	dis-1,2-dichloroethene	dis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene			
EQ/L	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	5	50	5	5	5	5		
Vapour Intrusion - Commercial Worker - 2-<4 m																																			
Vapour Intrusion - Commercial Worker - 4-<8 m																																			
Vapour Intrusion - Commercial Worker - 8 m+																																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																			
Drinking Water																																			
Recreational																																			
Ecological																																			

SampleCode	Field_ID	LocCode	Sample Date	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	dis-1,2-dichloroethene	dis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	
ES1407023001	VE_MW02_280314	VE_MW02	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1407023002	VE_MW03_280314	VE_MW03	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Average Concentration																																				
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Standard Deviation																																				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbc
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5e. Groundwater Summary - AEC VE  
Vales Point Power Station  
Project Symphony - 0237747

	MAH								Halogenated Benzenes								Halogenated Hydrocarbons				Solvents								
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	5	50	
Vapour Intrusion - Commercial Worker - 2-<4 m								NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m								NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+								NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																													
Drinking Water								30 <sup>#14</sup>	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>		40 <sup>#4</sup>					1 <sup>#14</sup>	1 <sup>#14</sup>										
Recreational								300 <sup>#9</sup>	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>		400 <sup>#9</sup>					10 <sup>#9</sup>	10 <sup>#9</sup>										
Ecological											80 <sup>#16</sup>																		

SampleCode	Field_ID	LocCode	Sample Date																											
ES1407023001	VE_MW02_280314	VE_MW02	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50	<50	
ES1407023002	VE_MW03_280314	VE_MW03	28/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50	<50	

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50
Average Concentration																												
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	25	25	25	25
Standard Deviation																												
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level







Table 5f. Groundwater Summary - AEC VF  
Vales Point Power Station  
Project Symphony - 0237747

	PAH															Phenols													
	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-dimethylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m								NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m								NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+								NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+								NL <sup>#13</sup>																					
Drinking Water				0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational				0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>							0.5 <sup>#9</sup>
Ecological								70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date																											
ES1406590008	VF_MW01_250314	VF_MW01	25/03/2014	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1406590007	VF_MW02_250314	VF_MW02	25/03/2014	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
ES1406590009	VF_MW03_250314	VF_MW03	25/03/2014	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	

Statistical Summary

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Concentration	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Average Concentration	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Median Concentration	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5g. Groundwater Summary - AEC VG  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>					NL <sup>#12</sup>								
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>					NL <sup>#11</sup>								
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>					NL <sup>#10</sup>								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>								
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>					600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>	
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>					6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>	
Ecological												700 <sup>#16</sup>							890 <sup>#16</sup>	5.5 <sup>#16</sup>	220 <sup>#16</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	45	<1	<0.1	3	50
ES1407201002	VG_MW01_310314	VG_MW01	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	45	<1	<0.1	3	50
ES1407201004	VG_MW02_310314	VG_MW02	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	0.4	2	596	10	<0.1	36	283
ES1407201007	VG_MW03_310314	VG_MW03	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<0.1	2	15	
ES1407201008	VG_MW04_310314	VG_MW04	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	2	<1	<0.1	12	29

Statistical Summary

Number of Results	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	1	0	4	4
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<0.1	2	15	
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	0.4	2	596	10	<0.1	36	283
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.88	0.14	0.88	161	2.9	0.05	13	94
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	0.05	0.5	23.5	0.5	0.05	7.5	39.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.75	0.18	0.75	291	4.8	0	16	127
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	3
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	3

Comments

NL = Not Limiting

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5g. Groundwater Summary - AEC VG  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols												
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c-d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEC)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date																												
ES1407201002	VG_MW01_310314	VG_MW01	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1-5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201004	VG_MW02_310314	VG_MW02	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201007	VG_MW03_310314	VG_MW03	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201008	VG_MW04_310314	VG_MW04	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary

Number of Results	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Standard Deviation	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbc
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5h. Groundwater Summary - AEC VH  
Vales Point Power Station  
Project Symphony - 0237747

	PAH														Phenols															
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,5,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m								NL <sup>#12</sup>																						
Vapour Intrusion - Commercial Worker - 4-<8 m								NL <sup>#11</sup>																						
Vapour Intrusion - Commercial Worker - 8 m+								NL <sup>#10</sup>																						
Vapour Intrusion - Intrusive Maint Worker 2m -8m+								NL <sup>#13</sup>																						
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>				3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological								70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,5,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
ES1406495004	VH_X_MW01_240314	VH_X_MW01	24/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590018	VH_X_MW02_250314	VH_X_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406495003	VH_X_MW03_240314	VH_X_MW03	24/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406495002	VH_X_MW04_240314	VH_X_MW04	24/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406495008	D01_240314_SO	VH_X_MW04	24/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406495001	VH_X_MW05_240314	VH_X_MW05	24/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407299004	VH_X_MW06	VH_X_MW06	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590019	VH_X_MW07_250314	VH_X_MW07	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590020	VH_X_MW08_250314	VH_X_MW08	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	2.3	<1	<1	19.8	<1	<1	<1	<1	<1
ES1406590021	VH_X_MW09_250314	VH_X_MW09	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590022	VH_X_MW10_250314	VH_X_MW10	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistical Summary

Number of Results	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	2.3	<1	<1	19.8	<1	<1	<1	<1	2.5	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.66	0.5	0.5	2.3	0.5	1	0.5	1	0.68	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.54	0	0	5.8	0	0	0	0	0.6	
Number of Guideline Exceedances	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	11	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Conc
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level







	Halogenated Benzenes								Halogenated Hydrocarbons					Solvents					
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	p-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	5	50	
Vapour Intrusion - Commercial Worker - 2-<4 m																			
Vapour Intrusion - Commercial Worker - 4-<8 m																			
Vapour Intrusion - Commercial Worker - 8 m+																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																			
Drinking Water	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>		40 <sup>#4</sup>					1 <sup>#14</sup>	1 <sup>#14</sup>								
Recreational	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>		400 <sup>#9</sup>					10 <sup>#9</sup>	10 <sup>#9</sup>								
Ecological		80 <sup>#16</sup>																	

SampleCode	Field_ID	LocCode	Sample Date	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	p-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
ES1406495004	VH_X_MW01_240314	VH_X_MW01	24/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406590018	VH_X_MW02_250314	VH_X_MW02	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
ES1406495003	VH_X_MW03_240314	VH_X_MW03	24/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406495002	VH_X_MW04_240314	VH_X_MW04	24/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406495008	D01_240314_SO	VH_X_MW04	24/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406495001	VH_X_MW05_240314	VH_X_MW05	24/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407299004	VH_X_MW06	VH_X_MW06	1/04/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1406590019	VH_X_MW07_250314	VH_X_MW07	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
ES1406590020	VH_X_MW08_250314	VH_X_MW08	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
ES1406590021	VH_X_MW09_250314	VH_X_MW09	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
ES1406590022	VH_X_MW10_250314	VH_X_MW10	25/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50

Statistical Summary

Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	25	2.5	25
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	25	25	25	2.5	25
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Conco
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial)
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5i. Groundwater Summary - AEC VI  
Vales Point Power Station  
Project Symphony - 0237747

	TRH										BTEX									
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C37-C46 Fraction	TRH > C47-C54 Fraction	TRH > C55-C64 Fraction	TRH > C65-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C17-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C40-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	2
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>		NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>	
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>		NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>	
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>		NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>	
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>		NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	
Drinking Water													1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>					600 <sup>#14</sup>
Recreational													10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>					6000 <sup>#9</sup>
Ecological													700 <sup>#16</sup>							

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	160	<50	160	<20	<20	<100	<100	120	<100	120	<1	<2	<2	<1	<2	<2	<2
ES1406590025	VI_MW01_250314	VI_MW01	25/03/2014	<20	<50	160	<50	160	<20	<20	<100	<100	120	<100	120	<1	<2	<2	<1	<2	<2	<2
ES1407301008	VI_MW02_010414	VI_MW02	1/04/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2

Statistical Summary	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<2
Maximum Concentration	<20	<50	160	<50	160	<20	<20	<100	<100	120	<100	120	<1	<2	<2	<1	<2	<2	<2	<2	<2
Average Concentration																					
Median Concentration	10	25	105	25	92.5	10	10	50	50	85	50	85	0.5	1	1	0.5	1	1	1	1	
Standard Deviation																					
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments NL = Not Limiting
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level









Table 5i. Groundwater Summary - AEC VI  
Vales Point Power Station  
Project Symphony - 0237747

	Halogenated Hydrocarbons				Solvents						Polychlorinated Biphenyls	PFOS/PFOA		
	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PcBs (Sum of total)	6:2 Fluorotelomer Sulfonate (6:2 FS)	Perfluorooctanoate	PFOS
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQI	5	50	50	5	50	50	50	50	5	50	1	0.1	0.02	0.02
Vapour Intrusion - Commercial Worker - 2-<4 m														
Vapour Intrusion - Commercial Worker - 4-<8 m														
Vapour Intrusion - Commercial Worker - 8 m+														
Vapour Intrusion - Intrusive Maint Worker 2m -8m+														
Drinking Water	#14	#14											0.4#2	0.2#2
Recreational	10#9	10#9												
Ecological														7.2#5

SampleCode	Field_ID	LocCode	Sample Date	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50	<50	<1	<0.1	0.03	0.1
ES1406590025	VI_MW01_250314	VI_MW01	25/03/2014	<5	<50	<50	<5	<50	<50	<50	<50	<5	<50	<50	<1	<0.1	0.03	0.1
ES1407301008	VI_MW02_010414	VI_MW02	1/04/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Minimum Concentration	<5	<50	<50	<5	<50	<50	<50	<50	<50	<5	<50	<50	<50	<50	<1	<0.1	0.03	0.1
Maximum Concentration	<5	<50	<50	<5	<50	<50	<50	<50	<50	<5	<50	<50	<50	<50	<1	<0.1	0.03	0.1
Average Concentration																		
Median Concentration	2.5	25	25	2.5	25	25	25	25	25	2.5	25	25	25	25	0.5	0.05	0.03	0.1
Standard Deviation																		
Number of Guideline Exceedances	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocart
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptat
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRV)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ir
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ir
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ir
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5j. Groundwater Summary - AEC VJ  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols											
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																				
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																				
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																				
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																				
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>				0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date																											
ES1406758006	VJ_MW01_GW	VJ_MW01	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407022006	VJ_MW02_280314	VJ_MW02	28/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406758005	VJ_MW03_GW	VJ_MW03	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1
ES1406758004	VJ_MW04_GW	VJ_MW04	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406758003	VJ_MW05_GW	VJ_MW05	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406758002	VJ_MW06_GW	VJ_MW06	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406758001	VJ_MW07_GW	VJ_MW07	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406758007	VJ_MW08_GW	VJ_MW08	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407022008	VJ_MW09_280314	VJ_MW09	28/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1407022007	VJ_MW10_280314	VJ_MW10	28/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistical Summary																																
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1			
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	2	<1	<1			
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	0.5	1	0.5	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5		
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



	TRH											BTEX							
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total
EQL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>					4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>					5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>					5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>					600 <sup>#14</sup>
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>					6000 <sup>#9</sup>
Ecological												700 <sup>#16</sup>							

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1406907002	VK_MW01_270314	VK_MW01	27/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1406907004	D01_270314_SN	VK_MW01	27/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1406907003	VK_MW02_270314	VK_MW02	27/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022001	VK_MW03_280314	VK_MW03	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022002	VK_MW04_280314	VK_MW04	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022005	VK_MW05_280314	VK_MW05	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022004	VK_MW06_280314	VK_MW06	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022009	D01_280314_SN	VK_MW06	28/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
ES1407022003	VK_MW07_280314	VK_MW07	28/02/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2

Statistical Summary

	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Number of Results	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting









Table 5k. Groundwater Summary - AEC VK  
Vales Point Power Station  
Project Symphony - 0237747

	VOCs			MAH								Halogenated Benzenes								Halogenated Hydrocarbons				Solvents							
	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	50	5	50	50	50	50	50	50	50
Vapour Intrusion - Commercial Worker - 2-<4 m											NL <sup>#12</sup>																				
Vapour Intrusion - Commercial Worker - 4-<8 m											NL <sup>#11</sup>																				
Vapour Intrusion - Commercial Worker - 8 m+											NL <sup>#10</sup>																				
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																															
Drinking Water											30 <sup>#14</sup>	593 <sup>#4</sup>	743 <sup>#4</sup>	1500 <sup>#4</sup>	40 <sup>#4</sup>							1 <sup>#14</sup>	1 <sup>#14</sup>								
Recreational											300 <sup>#9</sup>	5930 <sup>#9</sup>	7430 <sup>#9</sup>	15000 <sup>#9</sup>	400 <sup>#9</sup>							10 <sup>#9</sup>	10 <sup>#9</sup>								
Ecological													80 <sup>#16</sup>																		

SampleCode	Field_ID	LocCode	Sample Date	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406907002	VK_MW01_270314	VK_MW01	27/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406907004	D01_270314_SN	VK_MW01	27/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1406907003	VK_MW02_270314	VK_MW02	27/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES1407022001	VK_MW03_280314	VK_MW03	28/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407022002	VK_MW04_280314	VK_MW04	28/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407022005	VK_MW05_280314	VK_MW05	28/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407022004	VK_MW06_280314	VK_MW06	28/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407022009	D01_280314_SN	VK_MW06	28/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES1407022003	VK_MW07_280314	VK_MW07	28/02/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Results	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Detects	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 51. Groundwater Summary - AEC VL  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																Phenols										PFOS/PFOA							
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(e)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	6:2 Fluorotelomer Sulfonate (6:2 FTS)	Perfluorooctanoate	PFOS	
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1	1	0.1	0.02	0.02
Vapour Intrusion - Commercial Worker - 2-<4 m																																		
Vapour Intrusion - Commercial Worker - 4-<8 m																																		
Vapour Intrusion - Commercial Worker - 8 m+																																		
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																		
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>			0.4 <sup>#2</sup>	0.2 <sup>#2</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>											0.5 <sup>#9</sup>			
Ecological										70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>			7.2 <sup>#5</sup>

SampleCode	Field_ID	LocCode	Sample Date	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	<0.02
ES1407299002	VL_MW01	VL_MW01	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	<0.02
ES1407299001	VL_MW02	VL_MW02	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	0.17
ES1407299007	VL_MW03	VL_MW03	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	<0.02

Statistical Summary	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	<0.02		
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<0.1	<0.02	0.17		
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.05	0.01	0.063		
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.05	0.01	0.01			
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.092	
Number of Guideline Exceedances	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated H<sub>2</sub>
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Comm
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Comm
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Comm
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



Table 5m. Groundwater Summary - AEC VM  
Vales Point Power Station  
Project Symphony - 023774

	TRH											BTEX						Metals												
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Calcium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Magnesium (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Potassium (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1000	1	1	1	1000	0.1	1	1000	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>												
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>												
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>												
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>												
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>				1 <sup>#4</sup>	20 <sup>#14</sup>		
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>				10 <sup>#9</sup>	200 <sup>#9</sup>		
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>		220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>		0.4 <sup>#16</sup>	70 <sup>#16</sup>		15 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	0.4	-	<1	3	<1	-	<0.1	18	-	85
ES1406761005	VM_MW01_260314	VM_MW01	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	0.4	-	<1	3	<1	-	<0.1	18	-	85
ES1406761004	VM_MW03_260314	VM_MW03	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	46000	<1	1	<1	-	<0.1	7	-	25
ES1407204004	VM_MW04	VM_MW04	31/03/2014	<20	<50	560	<50	560	<20	<20	110	110	480	<100	590	<1	<2	<2	<1	<2	<2	<2	3	<0.1	46,000	<1	1	<1	14,000	<0.1	21	1000	48

Statistical Summary

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	1	0	1	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	2	1	1	0	3	0	1	0	3	1	3
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	46000	<1	1	<1	14000	<0.1	7	1000	25
Maximum Concentration	<20	<50	560	<50	560	<20	<20	110	110	480	<100	590	<1	<2	<2	<1	<2	<2	<1	<2	<2	3	0.4	46000	<1	3	<1	14000	<0.1	21	1000	85	
Average Concentration	10	25	220	25	203	10	10	70	70	193	50	230	0.5	1	1	0.5	1	1	1	1	1	1.8	0.17		0.5	1.7	0.5		0.05	15		53	
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	0.5	1	1	0.5	1	1	1	1	2	0.05	46000	0.5	1	0.5	14000	0.05	18	1000	48		
Standard Deviation	0	0	294	0	309	0	0	35	35	248	0	312	0	0	0	0	0	0	0	0	0	1.3	0.2		0	1.2	0		0	7.4		30	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





Table 5m. Groundwater Summary - AEC VM  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols													
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																						
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																						
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																						
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																						
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>		
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>		
Ecological								70 <sup>#16</sup>																					22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date																														
ES1406761005	VM_MW01_260314	VM_MW01	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761004	VM_MW03_260314	VM_MW03	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	
ES1407204004	VM_MW04	VM_MW04	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	

Statistical Summary																																
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



Table 5m. Groundwater Summary - AEC VM  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																										VOCs								
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropene	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene			
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	50	5	5	5	5			
Vapour Intrusion - Commercial Worker - 2-<4 m																																			
Vapour Intrusion - Commercial Worker - 4-<8 m																																			
Vapour Intrusion - Commercial Worker - 8 m+																																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																			
Drinking Water										30 <sup>#14</sup>																									
Recreational																																			
Ecological																																			

SampleCode	Field_ID	LocCode	Sample Date																																
ES1406761005	VM_MW01_260314	VM_MW01	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406761004	VM_MW03_260314	VM_MW03	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1407204004	VM_MW04	VM_MW04	31/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Average Concentration																																			
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
Standard Deviation																																			
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Ind
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting





Table 5n. Groundwater Summary - AEC VN  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals																			
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Thallium (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	1	2	2	1	2	2	2	1	1	1	50	0.1	1	1	1	1	1	1	0.1	1	1	10	1	10	5	
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>				4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>																			
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>				5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>																			
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>				5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>																			
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>																			
Drinking Water												1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	60	4000	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	500	1 <sup>#4</sup>	50	20 <sup>#14</sup>	10 <sup>#14</sup>							
Recreational												10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	600	40000	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	5000	10 <sup>#9</sup>	500	200 <sup>#9</sup>	100 <sup>#9</sup>							
Ecological												700 <sup>#16</sup>							890 <sup>#6</sup>	7100 <sup>#6</sup>		5100 <sup>#17</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1 <sup>#16</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	27000 <sup>#3</sup>	70 <sup>#16</sup>	3 <sup>#15</sup>	100 <sup>#16</sup>	15 <sup>#16</sup>				

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	44	<1	<50	0.1	<1	2	3	<1	56	<0.1	<1	4	<10	<1	<10	25
ES1406590001	VN_MW01_250314	VN_MW01	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	60	<1	60	<0.1	<1	<1	3	8	73	<0.1	<1	1	<10	<1	<10	13
ES1406590002	VN_MW02_250314	VN_MW02	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	60	<1	60	<0.1	<1	<1	7	77	<0.1	<1	<1	<10	<1	<10	<5	
ES1406590003	D01_250314_SN	VN_MW02	25/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	60	<1	60	<0.1	<1	<1	7	77	<0.1	<1	<1	<10	<1	<10	<5	
ES1406496002	VN_MW03_230314	VN_MW03	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	113	<1	<50	<0.1	<1	10	2	26	735	<0.1	<1	13	<10	<1	<10	20
ES1406496003	D01_230314_SN	VN_MW03	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	114	<1	<50	<0.1	<1	10	7	24	752	<0.1	<1	13	<10	<1	<10	21
ES1406496010	VN_MW05_230314	VN_MW05	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	30	<1	<50	<0.1	<1	3	3	10	66	<0.1	<1	3	<10	<1	<10	23
ES1406496008	VN_MW06_230314	VN_MW06	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	396	<1	<50	<0.1	<1	10	3	16	2500	<0.1	1	3	<10	<1	<10	22
ES1406496007	VN_MW07_230314	VN_MW07	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	133	<1	90	<0.1	<1	5	3	6	868	<0.1	<1	3	<10	<1	<10	24
ES1406496004	VN_MW08_230314	VN_MW08	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	66	<1	<50	<0.1	<1	1	4	<1	49	<0.1	<1	1	<10	<1	<10	16
ES1406496005	VN_MW09_230314	VN_MW09	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	81	<1	<50	<0.1	<1	7	4	<1	40	<0.1	<1	4	<10	<1	<10	26
ES1406496001	VP_MW10	VN_MW10	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	54	<1	<50	<0.1	<1	3	3	51	137	<0.1	<1	2	<10	<1	<10	25
ES1406496009	VN_MW12_230314	VN_MW12	23/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	17	<1	<50	<0.1	<1	<1	6	<1	20	<0.1	<1	2	<10	<1	<10	20

Statistical Summary	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	0	3	1	0	9	11	8	12	0	1	11	0	0	0	0	11
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	17	<1	<50	<0.1	<1	<1	<1	<1	20	<0.1	<1	<1	<10	<1	<10	<5		
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	396	<1	90	0.1	<1	10	7	51	2500	<0.1	1	13	<10	<1	<10	26		
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	1	0.58	97	0.5	36	0.054	0.5	4.4	3.5	13	448	0.05	0.54	4.1	5	0.5	5	20	
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	1	0.5	63	0.5	25	0.05	0.5	3	3	7.5	75	0.05	0.5	3	5	0.5	5	21.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.19	100	0	22	0.014	0	3.9	1.7	15	723	0	0.14	4.3	0	0	0	6.7		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	11	8	4	0	0	0	12	0	0	10		
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	11	8	4	0	0	0	0	0	0	10		

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



Table 5n. Groundwater Summary - AEC VN  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																Phenols													
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(e)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(e)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
ES1406590001	VN_MW01_250314	VN_MW01	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590002	VN_MW02_250314	VN_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406590003	D01_250314_SN	VN_MW02	25/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496002	VN_MW03_230314	VN_MW03	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496003	D01_230314_SN	VN_MW03	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496010	VN_MW05_230314	VN_MW05	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496008	VN_MW06_230314	VN_MW06	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496007	VN_MW07_230314	VN_MW07	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496004	VN_MW08_230314	VN_MW08	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496005	VN_MW09_230314	VN_MW09	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496001	VP_MW10	VN_MW10	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES1406496009	VN_MW12_230314	VN_MW12	23/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistical Summary	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(e)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol		
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	12	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Comments
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level









Table 50. Groundwater Summary - AEC VO  
Vales Point Power Station  
Project Symphony - 0237747

	Phenols											
	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4,4-trimethylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m												
Vapour Intrusion - Commercial Worker - 4-<8 m												
Vapour Intrusion - Commercial Worker - 8 m+												
Vapour Intrusion - Intrusive Maint Worker 2m -8m+												
Drinking Water		20 <sup>#1</sup>	200 <sup>#4</sup>			300 <sup>#4</sup>					0.05 <sup>#4</sup>	
Recreational		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological											22 <sup>#16</sup>	400 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sampled_Date-Time	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4,4-trimethylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
ES1406274001	VO_MW05_210314	VO_MW05	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274002	VO_MW06_210314	VO_MW06	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274003	VO_MW07_210314	VO_MW07	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274004	VO_MW09_210314	VO_MW09	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274005	VO_MW10_210314	VO_MW10	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274006	VO_MW20_210314	VO_MW20	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406274007	D01_210314_SN	VO_MW10	21/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406281001	VO_MW13_200314	VO_MW13	20/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406281002	VO_MW12_200314	VO_MW12	20/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406281003	VO_MW11_200314	VO_MW11	20/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406281004	D01_200314_SN	VO_MW12	20/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590004	VO_MW04_250314	VO_MW04	25/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590005	VO_MW03_250314	VO_MW03	25/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406590006	VO_MW02_250314	VO_MW02	25/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761014	VO_MW18_260314	VO_MW18	26/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761015	D01_260314_SN	VO_MW18	26/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202001	VO_MW15_310314	VO_MW15	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202002	VO_MW14_310314	VO_MW14	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202003	VO_X_MW02	VO_X_MW02	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202004	VO_X_MW01	VO_X_MW01	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202005	VO_X_MW03	VO_X_MW03	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202006	VO_MW17_310314	VO_MW17	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407202007	VO_MW19_310314	VO_MW19	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407204001	VO_MW08	VO_MW08	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407204002	D01_310314_KM	VO_MW08	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407204003	VO_MW01	VO_MW01	31/03/2014	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1411912001	VO_SW01	VO_SW01	27/05/2014	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary												
Number of Results	26	26	26	26	26	26	26	26	26	26	26	26
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1
Median Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	26
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0

- Comments**
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentratic
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 ;
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 ;
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level



Table 5p. Groundwater Summary - AEC VP  
Vales Point Power Station  
Project Symphony - 0237747

	TRH											BTEX						Metals									
	TRH > C6-C9 Fraction	TRH > C10-C14 Fraction	TRH > C15-C28 Fraction	TRH > C29-C36 Fraction	TRH > C10-C36 Fraction	TRH > C6-C10 Fraction	TRH > C6-C10 less BTEX (F1)	TRH > C10-C16 Fraction	TRH > C10-C16 less Naphthalene (F2)	TRH > C16-C34 Fraction	TRH > C34-C40 Fraction	TRH > C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	1	1	1	2	1	2	1	0.1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>					4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>								
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>					5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>								
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>					5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>								
Drinking Water													1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>	
Recreational													10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>	
Ecological													700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sampled_Date-Time																										
I10596-1	D02-270514	VP_MW01	27/05/2014	-	-	-	-	-	-	-	-	-	-	-	8	<1	<1	-	<2	<1	<3	-	-	-	-	-	-	-	-
ES1407301006	VP_MW01_010414	VP_MW01	1/04/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	2	<2	<2	2	<2	<2	<2	<1	<0.1	<1	<1	<1	<0.1	<1	12
ES1411772001	VP_MW01	VP_MW01	27/05/2014	-	-	-	-	-	-	-	-	-	-	-	6	<2	<2	6	<2	<2	<2	-	-	-	-	-	-	-	-
ES1407301005	VP_MW02_010414	VP_MW02	1/04/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	1	<0.1	<1	3	1	<0.1	5	23

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	3	4	4	4	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	1	0	0	1	1	0	1	2
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<1	<1	<1	<2	<1	<2	<1	<1	<0.1	<1	<1	<1	<0.1	<1	12
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	2	ND	ND	ND	1	ND	ND	3	1	ND	5	12	
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	8	<2	<2	6	<2	<2	<3	1	<0.1	<1	3	1	<0.1	5	23	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	ND	6	ND	ND	ND	1	ND	ND	3	1	ND	5	23	
Average Concentration													4.1	0.88	0.88	2.8	1	0.88	1.1									
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	4	1	1	2	1	1	1	0.75	0.05	0.5	1.75	0.75	0.05	2.75	17.5	
Standard Deviation													3.5	0.25	0.25	2.8	0	0.25	0.25									
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5p. Groundwater Summary - AEC VP  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																Phenols													
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-dimethylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>	20 <sup>#4</sup>	200 <sup>#4</sup>					300 <sup>#4</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>	200 <sup>#9</sup>	2000 <sup>#9</sup>					3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sampled_Date-Time																												
110596-1	D02-270514	VP_MW01	27/05/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1407301006	VP_MW01_010414	VP_MW01	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1411772001	VP_MW01	VP_MW01	27/05/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES1407301005	VP_MW02_010414	VP_MW02	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary																															
Number of Results	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration									1.2																						
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Standard Deviation									1.2																						
Number of Guideline Exceedances	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments**
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentr
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8r
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 5.4. Surfacewater Summary - AEC VR  
Vales Point Power Station  
Project Symphony - 0237747

	TRH										BTEX							Metals																			
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc	
EQL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
Recreational	10	50	100	50	50	10	10	50	50	100	100	10 <sup>#1</sup>	3000 <sup>#4</sup>	8000 <sup>#4</sup>	1	2	1	2	100 <sup>#4</sup>	100 <sup>#4</sup>	0.5	0.1	5	0.05	0.2	0.1	0.5	0.1	0.5	5000	10 <sup>#4</sup>	500	200 <sup>#4</sup>	100 <sup>#4</sup>	0.02	0.2	1
Ecological												700 <sup>#6</sup>	3000 <sup>#4</sup>	8000 <sup>#4</sup>					890 <sup>#3</sup>	7100 <sup>#3</sup>		5100 <sup>#7</sup>	5.5 <sup>#6</sup>	220 <sup>#3</sup>	1 <sup>#6</sup>	1.3 <sup>#6</sup>	4.4 <sup>#6</sup>	0.4 <sup>#6</sup>	27000 <sup>#1</sup>	70 <sup>#6</sup>	3 <sup>#5</sup>		100 <sup>#6</sup>	15 <sup>#6</sup>			

SampleCode	Field_ID	LocCode	Sample Date	<10	<50	<100	<100	-	<10	<10	<50	<50	<100	<100	-	<1	<1	<1	-	<2	<1	<3	2	57	<0.5	230	0.1	<1	1	2	1	150	<0.05	2	3	<1	<1	-	63
106678-1	T02-140314-JD	VR_C_SW07	14/03/2014	<10	<50	<100	<100	-	<10	<10	<50	<50	<100	<100	-	<1	<1	<1	-	<2	<1	<3	2	57	<0.5	230	0.1	<1	1	2	1	150	<0.05	2	3	<1	<1	-	63
ES1405359001	VR_W_SW03	VR_W_SW03	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.4	14	<0.1	4400	<0.2	<0.5	<0.2	3	0.4	15.9	<0.1	12.6	<0.5	<2	0.1	3.6	33
ES1405359002	VR_V_SW02	VR_V_SW02	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.8	12	<0.1	4280	<0.2	<0.5	<0.2	2	0.3	8.8	<0.1	12	<0.5	<2	<0.1	4.5	9
ES1405359003	VR_V_SW01	VR_V_SW01	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.8	11	<0.1	4130	<0.2	<0.5	<0.2	2	0.3	10.7	<0.1	12.3	<0.5	<2	<0.1	4.5	31
ES1405359004	D01_110314_JD	VR_T_SW01	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.8	12	<0.1	4090	<0.2	<0.5	<0.2	2	1.1	10.7	<0.1	13.1	<0.5	<2	<0.1	4.7	19
ES1405359005	VR_T_SW01	VR_T_SW01	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3	13	<0.1	4000	<0.2	<0.5	<0.2	2	0.6	10.9	<0.1	13.1	<0.5	<2	<0.1	4.6	14
ES1405359006	VR_W_SW04	VR_W_SW04	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3	13	<0.1	3960	<0.2	<0.5	<0.2	2	0.4	16.7	<0.1	12.7	<0.5	<2	0.1	4.9	26
ES1405359007	VR_W_SW01	VR_W_SW01	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.2	13	<0.1	3930	<0.2	<0.5	<0.2	2	0.3	13.6	<0.1	12.9	<0.5	<2	<0.1	4.6	16
ES1405359008	VR_W_SW02	VR_W_SW02	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.1	13	<0.1	3880	<0.2	<0.5	<0.2	2	0.2	12.3	<0.1	12.8	<0.5	<2	0.1	5	16
ES1405359009	VR_V_SW03	VR_V_SW03	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.1	12	<0.1	3780	<0.2	<0.5	<0.2	2	0.4	17.4	<0.1	12.3	<0.5	<2	<0.1	4.4	13
ES1405359010	T02_110314_JD	VR_T_SW02	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.1	12	<0.1	3820	<0.2	<0.5	<0.2	3	0.2	8.1	<0.1	12.9	<0.5	<2	<0.1	4.3	13
ES1405359011	D04_110314_JD	VR_T_SW02	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.2	11	<0.1	3800	<0.2	<0.5	<0.2	2	<0.2	7.5	<0.1	12.9	<0.5	<2	<0.1	4.4	10
ES1405359012	VR_T_SW03	VR_T_SW03	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.2	12	<0.1	3760	<0.2	<0.5	<0.2	2	0.3	10.9	<0.1	12.3	<0.5	<2	0.1	5.2	14
ES1405359013	VR_T_SW02	VR_T_SW02	11/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.2	12	<0.1	3710	<0.2	<0.5	<0.2	2	0.2	7.9	<0.1	13	<0.5	<2	<0.1	4.3	12
ES1405527011	VR_C_SW01	VR_C_SW01	12/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.2	27	<0.1	3310	<0.2	<0.5	0.4	2	0.3	49.1	<0.1	11.9	1	<2	<0.1	5.1	11
ES1405527012	VR_C_SW02	VR_C_SW02	12/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.2	27	<0.1	3300	<0.2	<0.5	0.4	<1	0.4	47.2	<0.1	11	1.1	<2	<0.1	5.7	19
ES1405527013	VR_C_SW03	VR_C_SW03	12/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.1	30	<0.1	3220	<0.2	1.8	0.4	<1	0.3	65.5	<0.1	11.1	1.3	<2	<0.1	4.2	17
ES1405527014	VR_M_SW02	VR_M_SW02	12/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.1	17	<0.1	3730	<0.2	2.3	0.3	1	0.7	27.6	<0.1	14.4	2	<2	0.1	8.7	48
ES1405673001	VR_C_SW06	VR_C_SW06	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.4	92.7	0.1	715	<0.05	0.9	2.9	2.2	1	231	<0.1	4	3.4	1	<0.02	2	59
ES1405673002	VR_M_SW06	VR_M_SW06	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.3	21	<0.1	3720	<0.2	3.6	0.6	1	1	47.8	<0.1	15.7	1.4	3	0.1	14.8	21
ES1405673003	VR_M_SW04	VR_M_SW04	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3	20	<0.1	3770	<0.2	2.2	0.5	<1	0.8	46	<0.1	14.9	1.1	3	0.1	12	15
ES1405673004	VR_M_SW01	VR_M_SW01	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3.1	20	<0.1	3680	<0.2	2.1	0.4	2	0.7	37.4	<0.1	13.5	1.1	<2	<0.1	8.8	19
ES1405673005	VR_M_SW03	VR_M_SW03	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3	20	<0.1	3740	<0.2	3.6	0.6	<1	0.8	63.1	<0.1	15.5	1.4	3	0.1	12.9	15
ES1405673006	VR_M_SW05	VR_M_SW05	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.8	20	<0.1	3770	<0.2	0.9	0.6	<1	0.6	67.6	<0.1	14.4	1	<2	<0.1	8.4	13
ES1405673007	VR_C_SW04	VR_C_SW04	13/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2.3	23	<0.1	3590	<0.2	<0.5	0.3	<1	0.3	68.3	<0.1	11.8	0.8	<2	<0.1</		



	Phenols												Field					Inorganics			
	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total	Dissolved Oxygen (Filtered)	EC (field)	pH (Field)	Redox	Temp	Turbidity	Salinity	TDS
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µS/cm	pH_Units	mV	oC	NTU	SPC	mg/L
EQL	1	1	1	1	1	1	1	1	2	1	2	1									
Recreational		200 <sup>#4</sup>	2000 <sup>#4</sup>			3000 <sup>#4</sup>					0.5 <sup>#4</sup>										
Ecological										22 <sup>#6</sup>	400 <sup>#6</sup>										

SampleCode	Field_ID	LocCode	Sample Date	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total	Dissolved Oxygen (Filtered)	EC (field)	pH (Field)	Redox	Temp	Turbidity	Salinity	TDS	
106678-1	T02-140314-JD	VR_C_SW07	14/03/2014	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-
ES1405359001	VR_W_SW03	VR_W_SW03	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	5.97	57,830	8.12	50.8	33.5	-	-	49,750	32,310	
ES1405359002	VR_V_SW02	VR_V_SW02	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.42	51,160	8.15	81.1	26.9	-	-	49,330	32,050	
ES1405359003	VR_V_SW01	VR_V_SW01	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.54	51,470	8.16	80.8	27.2	-	-	49,350	32,110	
ES1405359004	D01_110314_JD	VR_T_SW01	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	
ES1405359005	VR_T_SW01	VR_T_SW01	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.9	52,370	8.16	80.6	28.3	-	-	49,370	32,050	
ES1405359006	VR_W_SW04	VR_W_SW04	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.49	48,680	8.06	22.2	29.1	-	-	45,160	29,320	
ES1405359007	VR_W_SW01	VR_W_SW01	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.11	58,080	8.13	23.3	33.7	-	-	49,810	32,370	
ES1405359008	VR_W_SW02	VR_W_SW02	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.59	57,770	8.12	57	33.4	-	-	49,720	32,310	
ES1405359009	VR_V_SW03	VR_V_SW03	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	5.72	50,490	8.06	81.4	26.3	-	-	49,320	32,050	
ES1405359010	T02_110314_JD	VR_T_SW02	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	
ES1405359011	D04_110314_JD	VR_T_SW02	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	
ES1405359012	VR_T_SW03	VR_T_SW03	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.95	50,790	6.95	82.3	26.7	-	-	49,280	32,050	
ES1405359013	VR_T_SW02	VR_T_SW02	11/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	6.25	50,640	8.13	93.7	26.5	-	-	49,330	31,990	
ES1405527011	VR_C_SW01	VR_C_SW01	12/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	5.26	50,440	8	12.9	29.4	-	-	46,530	30,230	
ES1405527012	VR_C_SW02	VR_C_SW02	12/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	5.85	48,020	8	50.2	29.7	-	-	44,090	28,660	
ES1405527013	VR_C_SW03	VR_C_SW03	12/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.75	49,340	7.89	90	29.2	-	-	45,660	-	
ES1405527014	VR_M_SW02	VR_M_SW02	12/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	51,820	7.85	122.6	29.1	-	-	-	31,270	
ES1405673001	VR_C_SW06	VR_C_SW06	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	3.12	15,700	6.47	109.6	25.3	-	-	15,470	10,080	
ES1405673002	VR_M_SW06	VR_M_SW06	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.85	49,260	7.9	46	27.3	0	-	47,150	30,670	
ES1405673003	VR_M_SW04	VR_M_SW04	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.54	47,810	7.84	61.6	25.9	-	-	47,030	30,580	
ES1405673004	VR_M_SW01	VR_M_SW01	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.56	49,920	7.9	71.6	27.7	-	-	47,900	31,120	
ES1405673005	VR_M_SW03	VR_M_SW03	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.45	47,840	7.82	65.5	26	-	-	46,960	30,520	
ES1405673006	VR_M_SW05	VR_M_SW05	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.6	50,990	7.63	10	27.4	-	-	48,750	31,530	
ES1405673007	VR_C_SS04	VR_C_SS04	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	2.12	50,940	7.46	88	29.5	-	-	46,880	30,490	
ES1405673008	D06_130314_JD	VR_C_SW05	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	
ES1405673009	VR_C_SW05	VR_C_SW05	13/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	2.08	48,520	7.22	111.8	29.1	-	-	45,130	29,220	
ES1405741001	VR_C_SW07	VR_C_SW07	14/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	4.03	2726	6.08	124	19.7	-	-	3034	1970	
ES1405741002	D03_140314_JD	VR_C_SW07	14/03/2014	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	

Statistical Summary

Number of Results	28	28	28	28	28	28	28	28	28	28	28	28	28	1	22	23	23	23	23	1	22	22
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	23	23	23	23	1	22	22
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<50	2.08	2726	6.08	10	19.7	0	3034	1970
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	<50	6.95	58080	8.16	124	33.7	0	49810	32370
Average Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	5.2	47505	7.7	70	28		44318	28861	
Median Concentration	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	25	5.49	50490	7.9	80.6	27.7	0	47525	31195
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	12594	0.56	33	3		11641	7575	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

- #1 SRC eco gw
- #2 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #3 RIVM (2001); SRC eco
- #4 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW
- #5 ANZECC (2000) Marine - low reliability value
- #6 ANZECC (2000) Marine - 95% level of protection
- #7 ANZECC (2000) established background level



Table 5s. Groundwater Summary - AEC VS  
Vales Point Power Station  
Project Symphony - 0237747

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>					4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>								
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>					5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>								
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>					5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>								
Drinking Water													1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>	
Recreational													10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>	
Ecological													700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.5	<1	3	<1	<0.1	17	76
ES1406761006	VS_MW01_260314	VS_MW01	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.5	<1	3	<1	<0.1	17	76
ES1406761007	VS_MW02_260314	VS_MW02	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	0.2	<1	4	<1	<0.1	13	84
ES1406761008	VS_MW03_260314	VS_MW03	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	<0.1	<1	2	<1	<0.1	5	16
ES1406761009	VS_MW04_260314	VS_MW04	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	2	<0.1	<1	1	<1	<0.1	2	29
ES1406761010	D03_260314_SO	VS_MW04	26/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	3	<0.1	<1	<1	<1	<0.1	2	20
ES1406907001	VS_MW05_270314	VS_MW05	27/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	5	<0.1	2	<1	<1	<0.1	<1	22

Statistical Summary

Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	1	4	0	0	5	6
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<1	<0.1	<1	16
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	5	0.5	2	4	<1	<0.1	17	84
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	2.2	0.15	0.75	1.8	0.5	0.05	6.6	41
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	2	0.05	0.5	1.5	0.5	0.05	3.5	25.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7	0.18	0.61	1.4	0	0	6.8	30	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6

Comments

NL = Not Limiting

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level



Table 5s. Groundwater Summary - AEC VS  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols												
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>												0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>					0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>												0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																			22 <sup>#16</sup>	400 <sup>#16</sup>	

SampleCode	Field_ID	LocCode	Sample Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
ES1406761006	VS_MW01_260314	VS_MW01	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1
ES1406761007	VS_MW02_260314	VS_MW02	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1
ES1406761008	VS_MW03_260314	VS_MW03	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761009	VS_MW04_260314	VS_MW04	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406761010	D03_260314_SO	VS_MW04	26/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1406907001	VS_MW05_270314	VS_MW05	27/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary																															
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Comments**
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 5s. Groundwater Summary - AEC VS  
Vales Point Power Station  
Project Symphony - 0237747

	Chlorinated Hydrocarbons																										VOCs							
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene		
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	5	5	50	5	5	5		
Vapour Intrusion - Commercial Worker - 2-<4 m																																		
Vapour Intrusion - Commercial Worker - 4-<8 m																																		
Vapour Intrusion - Commercial Worker - 8 m+																																		
Vapour Intrusion - Intrusive Maint Worker 2m -8m+																																		
Drinking Water						30 <sup>#14</sup>				3 <sup>#14</sup>						190 <sup>#4</sup>			1910 <sup>#4</sup>	4 <sup>#7</sup>	60 <sup>#8</sup>			0.7 <sup>#14</sup>	20 <sup>#1</sup>	50 <sup>#14</sup>	60 <sup>#8</sup>		0.3 <sup>#14</sup>					
Recreational						300 <sup>#9</sup>				30 <sup>#9</sup>						1900 <sup>#9</sup>			19100 <sup>#9</sup>	40 <sup>#9</sup>	600 <sup>#9</sup>			7 <sup>#9</sup>	200 <sup>#9</sup>	500 <sup>#9</sup>	600 <sup>#9</sup>		3 <sup>#9</sup>					
Ecological						1900 <sup>#16</sup>																												

SampleCode	Field_ID	LocCode	Sample Date																															
ES1406761006	VS_MW01_260314	VS_MW01	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406761007	VS_MW02_260314	VS_MW02	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406761008	VS_MW03_260314	VS_MW03	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406761009	VS_MW04_260314	VS_MW04	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406761010	D03_260314_SO	VS_MW04	26/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ES1406907001	VS_MW05_270314	VS_MW05	27/03/2014	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Statistical Summary																																					
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5				
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5				
Average Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5				
Median Concentration	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5				
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	6	0	0	0	0				
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

- Comments**
- #1 WHO (2011) DWQ
  - #2 US EPA (2009) - Drinking water
  - #3 SRC eco gw
  - #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbo
  - #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
  - #6 RIVM (2001); SRC eco
  - #7 NHMRC 2011 ADWG Health (value for dichloromethane)
  - #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
  - #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
  - #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Inc
  - #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
  - #14 ASC NEPM (2013) GIL - Drinking Water
  - #15 ANZECC (2000) Marine - low reliability value
  - #16 ANZECC (2000) Marine - 95% level of protection
  - #17 ANZECC (2000) established background level





Table 5t. Groundwater Summary - AEC VT  
Vales Point Power Station  
Project Symphony - 0237747

	TRH												BTEX						Metals								
	TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	20	20	100	100	100	100	100	1	2	2	1	2	2	2	1	0.1	1	1	1	0.1	1	5
Vapour Intrusion - Commercial Worker - 2-<4 m							6200 <sup>#12</sup>	NL <sup>#12</sup>					4900 <sup>#12</sup>	NL <sup>#12</sup>	NL <sup>#12</sup>				NL <sup>#12</sup>								
Vapour Intrusion - Commercial Worker - 4-<8 m							6300 <sup>#11</sup>	NL <sup>#11</sup>					5100 <sup>#11</sup>	NL <sup>#11</sup>	NL <sup>#11</sup>				NL <sup>#11</sup>								
Vapour Intrusion - Commercial Worker - 8 m+							6500 <sup>#10</sup>	NL <sup>#10</sup>					5400 <sup>#10</sup>	NL <sup>#10</sup>	NL <sup>#10</sup>				NL <sup>#10</sup>								
Vapour Intrusion - Intrusive Maint Worker 2m -8m+							NL <sup>#13</sup>	NL <sup>#13</sup>					NL <sup>#13</sup>	NL <sup>#13</sup>	NL <sup>#13</sup>				NL <sup>#13</sup>								
Drinking Water													1 <sup>#14</sup>	300 <sup>#14</sup>	800 <sup>#14</sup>				600 <sup>#14</sup>	10 <sup>#14</sup>	2 <sup>#14</sup>	50 <sup>#14</sup>	2000 <sup>#14</sup>	10 <sup>#14</sup>	1 <sup>#4</sup>	20 <sup>#14</sup>	
Recreational													10 <sup>#9</sup>	3000 <sup>#9</sup>	8000 <sup>#9</sup>				6000 <sup>#9</sup>	100 <sup>#9</sup>	20 <sup>#9</sup>	500 <sup>#9</sup>	20000 <sup>#9</sup>	100 <sup>#9</sup>	10 <sup>#9</sup>	200 <sup>#9</sup>	
Ecological													700 <sup>#16</sup>							890 <sup>#6</sup>	5.5 <sup>#16</sup>	220 <sup>#6</sup>	1.3 <sup>#16</sup>	4.4 <sup>#16</sup>	0.4 <sup>#16</sup>	70 <sup>#16</sup>	15 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<1	<0.1	<1	6
ES1407201003	VT_MW01_310314	VT_MW01	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<1	<0.1	<1	6
ES1407201010	D01_310314_SN	VT_MW01	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	1	<1	<0.1	1	20
ES1407201001	VT_MW03B_310314	VT_MW03B	31/03/2014	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	10	1	<0.1	10	32

Statistical Summary

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	<1	<1	<0.1	<1	6
Maximum Concentration	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<1	<2	<2	<1	<2	<2	<2	<1	<0.1	<1	10	1	<0.1	10	32
Average Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	0.05	0.5	3.8	0.67	0.05	3.8	19	
Median Concentration	10	25	50	25	25	10	10	50	50	50	50	50	50	50	0.5	1	1	0.5	1	1	1	0.5	0.05	0.5	1	0.5	0.05	1	20	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.3	0.29	0	5.3	13	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbons
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable Concentration
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 8m+
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 4-<8 m
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Industrial) 2-<4 m
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

NL = Not Limiting



Table 5t. Groundwater Summary - AEC VT  
Vales Point Power Station  
Project Symphony - 0237747

	PAH																	Phenols												
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	2	1	2	1
Vapour Intrusion - Commercial Worker - 2-<4 m									NL <sup>#12</sup>																					
Vapour Intrusion - Commercial Worker - 4-<8 m									NL <sup>#11</sup>																					
Vapour Intrusion - Commercial Worker - 8 m+									NL <sup>#10</sup>																					
Vapour Intrusion - Intrusive Maint Worker 2m -8m+									NL <sup>#13</sup>																					
Drinking Water					0.01 <sup>#4</sup>													0.01 <sup>#4</sup>		20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>		300 <sup>#4</sup>	1400 <sup>#2</sup>				0.05 <sup>#4</sup>	
Recreational					0.1 <sup>#9</sup>													0.1 <sup>#9</sup>		200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>					0.5 <sup>#9</sup>	
Ecological									70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>

SampleCode	Field_ID	LocCode	Sample Date																												
ES1407201003	VT_MW01_310314	VT_MW01	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201010	D01_310314_SN	VT_MW01	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
ES1407201001	VT_MW03B_310314	VT_MW03B	31/03/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1

Statistical Summary

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1
Maximum Concentration	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<2	<1	<2	<1	
Average Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Median Concentration	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarbon
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptable
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Indu
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Indu
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/Indu
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level





	PAH																	Phenols																
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	
Vapour Intrusion - Commercial Worker - 2-<4 m											NL <sup>#12</sup>																							
Vapour Intrusion - Commercial Worker - 4-<8 m											NL <sup>#11</sup>																							
Vapour Intrusion - Commercial Worker - 8 m+											NL <sup>#10</sup>																							
Vapour Intrusion - Intrusive Maint Worker 2m -8m+											NL <sup>#13</sup>																							
Drinking Water					0.01 <sup>#4</sup>															0.01 <sup>#4</sup>	20 <sup>#4</sup>	200 <sup>#4</sup>	270 <sup>#2</sup>	300 <sup>#4</sup>	1400 <sup>#2</sup>						0.05 <sup>#4</sup>			
Recreational					0.1 <sup>#9</sup>															0.1 <sup>#9</sup>	200 <sup>#9</sup>	2000 <sup>#9</sup>			3000 <sup>#9</sup>						0.5 <sup>#9</sup>			
Ecological											70 <sup>#16</sup>																				22 <sup>#16</sup>	400 <sup>#16</sup>		

SampleCode	Field_ID	LocCode	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Phenolics Total	
ES1407300006	VU_MW01_010414	VU_MW01	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	
ES1407300007	VU_MW02_010414	VU_MW02	1/04/2014	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
107703-1	T01-010414-KM	VU_MW03	1/04/2014	<1	<1	<1	<1	<1	<2	-	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	
ES1407299003	VU_MW03	VU_MW03	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407299006	D01_010414_KM	VU_MW03	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
107626-1	T01-010414-SB	VU_MW04	1/04/2014	<1	<1	<1	<1	<1	<2	-	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	
ES1407300002	VU_MW04_010414	VU_MW04	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300003	D01_010414_SB	VU_MW04	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300001	VU_MW05_010414	VU_MW05	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300005	VU_MW06_010414	VU_MW06	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300008	VU_MW07_010414	VU_MW07	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407299005	VU_MW08	VU_MW08	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407301004	VU_MW09_010414	VU_MW09	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407301002	VU_MW12_010414	VU_MW12	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407201009	VU_MW13_310314	VU_MW13	31/03/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407301003	VU_MW14_010414	VU_MW14	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407301007	VU_MW15_010414	VU_MW15	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300010	VU_MW16_010414	VU_MW16	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
ES1407300009	VU_MW17_010414	VU_MW17	1/04/2014	<1	<1	<1	<1	<0.5	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-

Statistical Summary

Number of Results	19	19	19	19	19	2	17	19	17	2	19	19	19	19	19	19	19	19	19	19	19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<0.5	<2	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50	
Maximum Concentration	<1	<1	<1	<1	<1	<2	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50	
Average Concentration	0.5	0.5	0.5	0.5	0.28	1	0.5	0.5	0.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.22	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	
Median Concentration	0.5	0.5	0.5	0.5	0.25	1	0.5	0.5	0.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	25	
Standard Deviation	0	0	0	0	0.079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	17	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments

- #1 WHO (2011) DWQ
- #2 US EPA (2009) - Drinking water
- #3 SRC eco gw
- #4 RIVM 2001 (Human-toxicological SRC GW) V Chlorinated Hydrocarb
- #5 RIVM (2010) Environmental risk limits for PFOS - Maximim Acceptabl
- #6 RIVM (2001); SRC eco
- #7 NHMRC 2011 ADWG Health (value for dichloromethane)
- #8 NHMRC 2011 ADWG Health (total 1,2-dichloroethene)
- #9 Guidelines for Managing Risk in Recreational Waters (2008) (GMRRW)
- #10 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #11 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #12 ASC NEPM (2103) HSL for vapour intrusion HSL-D (Commercial/In
- #13 ASC NEPM (2013) HSL for Intrusive Maint Workers 2m -8m+
- #14 ASC NEPM (2013) GIL - Drinking Water
- #15 ANZECC (2000) Marine - low reliability value
- #16 ANZECC (2000) Marine - 95% level of protection
- #17 ANZECC (2000) established background level

	Asbestos							
	Weight of Sample	Weight Used for % Calculation	Asbestos Containing Material	Asbestos fibres	Asbestos Fines and Fibrous Asbestos (<7mm)	Asbestos Type	Fibrous Asbestos	Trace Asbestos Detected
	g	kg	g	g/kg	%	g	g	Fibres
EQL	0.01	0.0001	0.1	0.1	0.001	1	0.002	5
Human Health - Asbestos					0.001 <sup>#1</sup>			

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sampled_Date-Time	Weight of Sample (g)	Weight Used for % Calculation (kg)	Asbestos Containing Material (g)	Asbestos fibres (g/kg)	Asbestos Fines and Fibrous Asbestos (<7mm) (%)	Asbestos Type (g)	Fibrous Asbestos (g)	Trace Asbestos Detected (Fibres)
ES1406339009	SS01_GP	SS01_GP	0-0.2	18/03/2014 15:00	35.4	-	<0.1	No	-	<1	-	-
ES1405660035	VA_MW01_0.1	VA_MW01	0-0.2	13/03/2014 15:00	446	0.446	<0.1	No	<0.001	<1	<0.002	No
ES1405362005	VA_MW02_0.1	VA_MW02	0-0.2	11/03/2014 15:00	726	0.726	<0.1	No	<0.001	<1	<0.002	No
ES1405362003	VA_MW03_0.2	VA_MW03	0.1-0.3	11/03/2014 15:00	670	0.67	<0.1	No	<0.001	<1	<0.002	No
ES1405227012	VA_MW04_0.1	VA_MW04	0-0.2	10/03/2014 15:00	794	0.794	<0.1	No	<0.001	<1	<0.002	No
ES1405227009	VA_MW05_0.1	VA_MW05	0-0.2	10/03/2014 14:15	740	0.74	<0.1	No	<0.001	<1	<0.002	No
ES1405362001	VA_MW06_0.2	VA_MW06	0.1-0.3	11/03/2014 15:00	586	0.586	<0.1	No	<0.001	<1	<0.002	No
ES1405879011	VA_SB01_0.1	VA_SB01	0-0.2	17/03/2014 14:20	1110	1.11	<0.1	No	<0.001	<1	<0.002	No
ES1405362006	VA_SB02_0.1	VA_SB02	0-0.2	11/03/2014 15:00	926	0.926	<0.1	No	<0.001	<1	<0.002	No
ES1405227010	VA_SB03_0.1	VA_SB03	0-0.2	10/03/2014 15:00	652	0.652	<0.1	No	<0.001	<1	<0.002	No
ES1405739003	VB_MW01_0.2	VB_MW01	0.1-0.3	14/03/2014 15:00	337	0.337	<0.1	No	<0.001	<1	<0.002	No
ES1405739005	VB_MW02_0.2	VB_MW02	0.1-0.3	14/03/2014 15:00	470	0.47	<0.1	No	<0.001	<1	<0.002	No
ES1405526001	VB_MW03_0.2	VB_MW03	0.1-0.3	12/03/2014 15:00	421	0.421	<0.1	No	<0.001	<1	<0.002	No
ES1406278008	VB_MW05_0.25	VB_MW05	0.15-0.35	20/03/2014 11:35	1010	1.01	<0.1	No	<0.001	<1	<0.002	No
ES1405963010	VB_SB01_0.35	VB_SB01	0.25-0.45	18/03/2014 14:20	843	0.843	<0.1	No	<0.001	<1	<0.002	No
ES1405963011	VC_MW01_0.25	VC_MW01	0.15-0.35	18/03/2014 16:35	962	0.962	<0.1	No	<0.001	<1	<0.002	No
ES1405525005	VC_MW02_0.1	VC_MW02	0-0.2	12/03/2014 8:30	664	0.664	<0.1	No	<0.001	<1	<0.002	No
ES1407203006	VC_MW03_0.1	VC_MW03	0-0.2	31/03/2014 14:45	759	0.759	<0.1	Yes	0.005	Ch	0.012	No
ES1405525025	VC_MW04_0.4	VC_MW04	0.3-0.5	12/03/2014 12:00	921	0.921	<0.1	No	<0.001	<1	<0.002	No
ES1405525001	VC_MW05_0.5	VC_MW05	0.4-0.6	12/03/2014 10:50	736	0.736	<0.1	No	<0.001	<1	<0.002	No
ES1407203005	VC_SB03_0.1	VC_SB03	0-0.2	31/03/2014 14:50	809	0.809	<0.1	No	<0.001	<1	<0.002	No
ES1405526005	VD_MW01_0.3	VD_MW01	0.2-0.4	12/03/2014 15:00	527	0.527	<0.1	No	<0.001	<1	<0.002	No
ES1405526007	VD_MW02_0.2	VD_MW02	0.1-0.3	12/03/2014 15:00	497	0.497	<0.1	No	<0.001	<1	<0.002	No
ES1405526011	VD_MW03_0.3	VD_MW03	0.2-0.4	12/03/2014 15:00	449	0.449	<0.1	No	<0.001	<1	<0.002	No
ES1405526003	VD_MW04_0.2	VD_MW04	0.1-0.3	12/03/2014 15:00	574	0.574	<0.1	No	<0.001	<1	<0.002	No
ES1405879003	VD_MW05_0.1	VD_MW05	0-0.2	17/03/2014 12:20	990	0.99	<0.1	No	<0.001	<1	<0.002	No
ES1405526013	VD_SB01_0.3	VD_SB01	0.2-0.4	12/03/2014 15:00	296	0.296	<0.1	No	<0.001	<1	<0.002	No
ES1405526009	VD_SB02_0.2	VD_SB02	0.1-0.3	12/03/2014 15:00	597	0.597	<0.1	No	<0.001	<1	<0.002	No
ES1405739001	VI_MW01_0.2	VI_MW01	0.1-0.3	14/03/2014 15:00	318	0.318	<0.1	No	<0.001	<1	<0.002	No
ES1406339005	VI_MW02_0.3	VI_MW02	0.2-0.4	21/03/2014 12:20	970	0.97	<0.1	No	<0.001	<1	<0.002	No
ES1407203010	VI_SB01_0.1	VI_SB01	0-0.2	31/03/2014 16:45	399	0.399	<0.1	No	<0.001	<1	<0.002	No
ES1405525018	VK_MW02_0.2	VK_MW02	0.1-0.3	12/03/2014 14:30	727	0.727	<0.1	No	<0.001	<1	<0.002	No
ES1405525020	VK_MW02_0.1	VK_MW02	0-0.2	12/03/2014 15:40	881	0.881	<0.1	No	<0.001	<1	<0.002	No
ES1405525024	VK_MW04_0.2	VK_MW04	0.1-0.3	12/03/2014 15:05	516	0.516	<0.1	No	<0.001	<1	<0.002	No
ES1405660016	VK_MW05_0.1	VK_MW05	0-0.2	13/03/2014 16:25	833	0.833	<0.1	No	<0.001	<1	<0.002	No
ES1405738002	VK_MW06_0.2	VK_MW06	0.1-0.3	14/03/2014 9:30	1100	1.1	<0.1	No	<0.001	<1	<0.002	No
ES1405738001	VK_MW07_0.1	VK_MW07	0-0.2	14/03/2014 11:20	732	0.732	0.8	Yes	<0.001	Ch	<0.002	No
ES1405525016	VK_SB01_0.25	VK_SB01	0.15-0.35	12/03/2014 15:10	658	0.657	<0.1	No	<0.001	<1	<0.002	No
ES1405963008	VK_SB02_0.1	VK_SB02	0-0.2	18/03/2014 12:20	926	0.926	<0.1	No	<0.001	<1	<0.002	No
ES1405879005	VL_MW01_0.1	VL_MW01	0-0.2	17/03/2014 11:45	921	0.921	<0.1	No	<0.001	<1	<0.002	No
ES1406278002	VL_MW02_0.1	VL_MW02	0-0.2	20/03/2014 9:30	915	0.915	<0.1	No	<0.001	<1	<0.002	No
ES1406278006	VL_MW03_0.2	VL_MW03	0.1-0.3	20/03/2014 10:05	922	0.922	<0.1	No	<0.001	<1	<0.002	No
ES1407203009	VL_SB01_0.1	VL_SB01	0-0.2	31/03/2014 16:00	539	0.539	<0.1	No	<0.001	<1	<0.002	No
ES1406140011	VM_MW01_0.15	VM_MW01	0.05-0.25	19/03/2014 11:15	369	0.369	<0.1	No	<0.001	<1	<0.002	No
ES1407203001	VM_MW02_0.1	VM_MW02	0-0.2	31/03/2014 12:30	604	0.604	<0.1	Yes	0.004	Ch+Am	0.018	No
ES1406140015	VM_MW03_0.2	VM_MW03	0.1-0.3	19/03/2014 13:25	870	0.87	<0.1	No	<0.001	<1	<0.002	No
ES1406140013	VM_MW04_0.3	VM_MW04	0.2-0.4	19/03/2014 12:50	804	0.804	<0.1	No	<0.001	<1	<0.002	No
ES1407203002	VM_MW05_0.1	VM_MW05	0-0.2	31/03/2014 12:50	509	0.509	<0.1	No	<0.001	<1	<0.002	No
ES1407203003	VM_SB01_0.01	VM_SB01	0-0.11	31/03/2014 13:15	625	0.625	<0.1	No	<0.001	<1	<0.002	No
ES1404881030	VO_MW01_0.2	VO_MW01	0.1-0.3	4/03/2014 15:00	671	0.671	<0.1	No	<0.001	<1	<0.002	No
ES1406280001	VO_MW02_2.0	VO_MW02	1.9-2.1	20/03/2014 15:00	190	0.19	<0.1	No	<0.001	<1	<0.002	No
ES1404400003	VO_MW04_0.2	VO_MW04	0.1-0.3	27/02/2014 10:30	689	0.689	<0.1	No	<0.001	<1	<0.002	No
ES1404400002	VO_MW05_0.2	VO_MW05	0.1-0.3	27/02/2014 9:30	657	0.657	<0.1	No	<0.001	<1	<0.002	No
ES1404400001	VO_MW06_0.2	VO_MW06	0.1-0.3	27/02/2014 8:45	512	0.512	<0.1	No	<0.001	<1	<0.002	No
ES1404115001	VO_MW07_0.1	VO_MW07	0-0.2	26/02/2014 15:00	378	0.378	<0.1	No	<0.001	<1	<0.002	No
ES1406498003	VO_MW08_0.1	VO_MW08	0-0.2	24/03/2014 15:00	309	0.309	<0.1	No	<0.001	<1	<0.002	No
ES1404115005	VO_MW09_0.1	VO_MW09	0-0.2	26/02/2014 15:00	417	0.417	<0.1	No	<0.001	<1	<0.002	No
ES1404115028	VO_MW10_0.2	VO_MW10	0.1-0.3	26/02/2014 15:00	735	0.735	<0.1	No	<0.001	<1	<0.002	No
ES1404115012	VO_MW11_0.1	VO_MW11	0-0.2	26/02/2014 15:00	598	0.598	<0.1	No	<0.001	<1	<0.002	No
ES1404881032	VO_MW12_0.2	VO_MW12	0.1-0.3	4/03/2014 15:00	910	0.91	<0.1	No	<0.001	<1	<0.002	No
ES1405121018	VO_MW13_0.2	VO_MW13	0.1-0.3	7/03/2014 15:00	716	0.716	<0.1	No	<0.001	<1	<0.002	No
ES1406275005	VO_MW14_0.2	VO_MW14	0.1-0.3	20/03/2014 15:00	441	0.441	<0.1	No	<0.001	<1	<0.002	No
ES1406275007	VO_MW15_0.2	VO_MW15	0.1-0.3	20/03/2014 15:00	417	0.417	<0.1	No	<0.001	<1	<0.002	No
ES1404580005	VO_MW16_0.2	VO_MW16	0.1-0.3	3/03/2014 15:00	707	0.707	<0.1	No	<0.001	<1	<0.002	No
ES1406497005	VO_MW17_0.2	VO_MW17	0.1-0.3	24/03/2014 15:00	604	0.604	<0.1	No	<0.001	<1	<0.002	No
ES1405227019	VO_MW18_0.1	VO_MW18	0-0.2	10/03/2014 15:00	280	0.28	<0.1	No	<0.001	<1	<0.002	No
ES1406762005	VO_MW19_0.1	VO_MW19	0-0.2	26/03/2014 15:00	766	0.766	<0.1	No	<0.001	<1	<0.002	No
ES1404115003	VO_MW20_0.1	VO_MW20	0-0.2	26/02/2014 15:00	602	0.602	<0.1	No	<0.001	<1	<0.002	No
ES1404881034	VO_SB01_0.2	VO_SB01	0.1-0.3	4/03/2014 15:00	827	0.827	<0.1	No	<0.001	<1	<0.002	No
ES1404580010	VO_SB03_0.2	VO_SB03	0.1-0.3	3/03/2014 15:00	873	0.873	<0.1	No	<0.001	<1	<0.002	No
ES1404400005	VP_MW01_0.2	VP_MW01	0.1-0.3	27/02/2014 11:20	607	0.607	<0.1	No	<0.001	<1	<0.002	No
ES1405121001	VP_MW01_4.0	VP_MW01	3.9-4.1	7/03/2014 9:45	1000	1	<0.1	No	<0.001	<1	<0.002	No
ES1404881029	VP_MW02_2.0	VP_MW02	1.9-2.1	5/03/2014 15:00	333	0.333	<0.1	Yes	0.035	Am+Cr	0.117	No
ES1404881036	VP_MW02_0.2	VP_MW02	0.1-0.3	4/03/2014 15:00	658	0.658	<0.1	No	<0.001	<1	<0.002	No
ES1405881007	VP_SB01_0.2	VP_SB01	0.1-0.3	17/03/2014 15:00	759	0.759	<0.1	No	<0.001	<1	<0.002	No
ES1404881015	VP_SB02_0.2	VP_SB02	0.1-0.3	5/03/2014 8:30	628	0.628	<0.1	Yes	0.009	Ch+Am+Cr	0.034	No

	Asbestos							
	Weight of Sample	Weight Used for % Calculation	Asbestos Containing Material	Asbestos fibres	Asbestos Fines and Fibrous Asbestos (<7mm)	Asbestos Type	Fibrous Asbestos	Trace Asbestos Detected
	g	kg	g	g/kg	%	g	g	Fibres
EQL	0.01	0.0001	0.1	0.1	0.001	1	0.002	5
Human Health - Asbestos					0.001 <sup>#1</sup>			

SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sampled_Date-Time								
ES1404881019	VP_SB03_0.2	VP_SB03	0.1-0.3	5/03/2014 9:45	801	0.801	<0.1	No	<0.001	<1	<0.002	No
ES1404400007	VP_SB04_0.2	VP_SB04	0.1-0.3	27/02/2014 12:00	534	0.534	<0.1	No	<0.001	<1	<0.002	No
ES1404881027	VP_SB04_2.0	VP_SB04	1.9-2.1	5/03/2014 15:00	228	0.228	<0.1	No	<0.001	<1	<0.002	No
ES1404400010	VP_SB05_0.2	VP_SB05	0.1-0.3	27/02/2014 15:00	681	0.681	<0.1	No	<0.001	<1	<0.002	No
ES1404881003	VP_SB05_3.0	VP_SB05	2.9-3.1	5/03/2014 10:00	507	0.507	<0.1	No	<0.001	<1	<0.002	No
ES1404400012	VP_SB06_0.5	VP_SB06	0.4-0.6	27/02/2014 15:30	686	0.686	<0.1	No	<0.001	<1	<0.002	No
ES1404881002	VP_SB06_3.0	VP_SB06	2.9-3.1	5/03/2014 10:00	366	0.366	<0.1	No	<0.001	<1	<0.002	No
ES1404580003	VP_SB07_0.2	VP_SB07	0.1-0.3	3/03/2014 15:00	534	0.534	<0.1	No	<0.001	<1	<0.002	No
ES1404881010	VP_SB07_3.0	VP_SB07	2.9-3.1	4/03/2014 15:00	251	0.251	<0.1	No	<0.001	<1	<0.002	No
ES1404580001	VP_SB08_0.2	VP_SB08	0.1-0.3	3/03/2014 15:00	543	0.543	<0.1	No	<0.001	<1	<0.002	No
ES1404881011	VP_SB08_3.0	VP_SB08	2.9-3.1	4/03/2014 15:00	194	0.194	<0.1	No	<0.001	<1	<0.002	No
ES1405881001	VP_SB09_0.2	VP_SB09	0.1-0.3	17/03/2014 15:00	644	0.644	<0.1	No	<0.001	<1	<0.002	No
ES1405881003	VP_SB10_0.2	VP_SB10	0.1-0.3	17/03/2014 15:00	680	0.68	<0.1	No	<0.001	<1	<0.002	No
ES1405881005	D01_170314_RP	VP_SB10	0.4-0.6	17/03/2014 15:00	38.5	0.0385	<0.1	No	<0.005	<1	<0.002	No
ES1405881009	T01_170314_RP	VP_SB10	0.4-0.6	17/03/2014 15:00	43.5	0.0435	<0.1	No	<0.005	<1	<0.002	No
ES1405660025	VQ_SB01_0.1	VQ_SB01	0-0.2	13/03/2014 15:00	385	0.385	<0.1	No	<0.001	<1	<0.002	No
ES1405660026	VQ_SB02_0.1	VQ_SB02	0-0.2	13/03/2014 15:00	439	0.439	<0.1	No	<0.001	1	<0.002	No
ES1405660027	VQ_SB03_0.1	VQ_SB03	0-0.2	13/03/2014 15:00	539	0.539	<0.1	No	<0.001	<1	<0.002	No
ES1405660028	VQ_SB04_0.1	VQ_SB04	0-0.2	13/03/2014 15:00	534	0.534	<0.1	No	<0.001	<1	<0.002	No
ES1405660029	VQ_SB05_0.1	VQ_SB05	0-0.2	13/03/2014 15:00	428	0.428	<0.1	No	<0.001	<1	<0.002	No
ES1405660030	VQ_SB06_0.1	VQ_SB06	0-0.2	13/03/2014 15:00	412	0.412	<0.1	Yes	<0.001	Ch	<0.002	No
ES1405660031	VQ_SB07_0.1	VQ_SB07	0-0.2	13/03/2014 15:00	556	0.556	<0.1	No	<0.001	<1	<0.002	No
ES1405660032	VQ_SB08_0.1	VQ_SB08	0-0.2	13/03/2014 15:00	561	0.561	<0.1	No	<0.001	<1	<0.002	No
ES1405660033	VQ_SB09_0.1	VQ_SB09	0-0.2	13/03/2014 15:00	471	0.471	<0.1	No	<0.001	<1	<0.002	No
ES1406497003	VQ_SB10_0.2	VQ_SB10	0.1-0.3	24/03/2014 15:00	336	0.336	<0.1	No	<0.001	<1	<0.002	No
ES1406497001	VQ_SB11_0.2	VQ_SB11	0.1-0.3	24/03/2014 15:00	567	0.567	<0.1	Yes	<0.001	Ch+Am	0.002	No
ES1406497002	VQ_SB12_0.2	VQ_SB12	0.1-0.3	24/03/2014 15:00	342	0.342	<0.1	Yes	<0.001	Am	<0.002	No
ES1406140007	VS_MW01_0.2	VS_MW01	0.1-0.3	19/03/2014 10:45	1130	1.13	<0.1	No	<0.001	<1	<0.002	No
ES1406140005	VS_MW02_0.5	VS_MW02	0.4-0.6	19/03/2014 10:15	854	0.854	<0.1	No	<0.001	<1	<0.002	No
ES1405738018	VS_MW03_0.2	VS_MW03	0.1-0.3	14/03/2014 15:00	381	0.381	<0.1	No	<0.001	<1	<0.002	No
ES1405738014	VS_MW04_0.2	VS_MW04	0.1-0.3	14/03/2014 15:00	333	0.333	<0.1	No	<0.001	<1	<0.002	No
ES1405737004	VS_MW05_0.1	VS_MW05	0-0.2	14/03/2014 17:00	875	0.875	<0.1	No	<0.001	<1	<0.002	No
ES1406140001	VS_SB01_0.2	VS_SB01	0.1-0.3	19/03/2014 9:05	1060	1.06	<0.1	No	<0.001	<1	<0.002	No
ES1406339002	VT_MW01_0.2	VT_MW01	0.1-0.3	21/03/2014 9:30	684	0.684	<0.1	No	<0.001	<1	<0.002	No
ES1406339001	VT_MWB3A_0.35	VT_MW03A	0.25-0.45	21/03/2014 8:35	962	0.962	<0.1	No	<0.001	<1	<0.002	No
ES1406339004	VT_MW03B_0.5	VT_MW03B	0.4-0.6	21/03/2014 10:40	786	0.786	<0.1	No	<0.001	<1	<0.002	No
ES1406275001	VU_MW13_0.2	VU_MW13	0.1-0.3	20/03/2014 15:00	823	0.823	<0.1	No	<0.001	<1	<0.002	No
ES1406275003	VU_SB02_0.2	VU_SB02	0.1-0.3	20/03/2014 15:00	422	0.422	<0.1	No	<0.001	<1	<0.002	No

Statistical Summary

Number of Results	114	113	114	0	113	106	113	0
Number of Detects	114	113	1	0	4	1	5	0
Number of Guideline Exceedances	0	0	0	0	6	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	4	0	0	0

Comments

#1 ASC NEPM (2013) Health Screening Level for Asbestos in Soil - FA and AF (Friable Asbestos)



					Inorganics										
					Exchangeable Aluminium	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Chloride	Electrical conductivity (lab)	pH (aqueous extract)	Sodium	Sulphate	TOC
					meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	mg/kg	µS/cm	pH Units	mg/kg	mg/kg	%
EQL					0.1	0.1	0.1	0.1	0.1	10	1		10	10	0.02
SampleCode	Field_ID	LocCode	Sample_Depth_Range	Sample Date											
I07360-1	T01_260314_SB	VO_MW15	4.4-4.6	26/03/2014	-	-	-	-	-	-	-	5.3	-	-	-
ES1404115001	VO_MW07_0.1	VO_MW07	0-0.2	26/02/2014	-	0.2	0.1	<0.1	<0.1	-	-	-	-	-	1.06
ES1404115014	VU_MW20_0.1	VU_MW20	0-0.2	26/02/2014	-	0.4	0.8	<0.1	0.2	-	-	-	-	-	0.49
ES1404580001	VP_SB08_0.2	VP_SB08	0.1-0.3	3/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404580002	VP_SB08_0.5	VP_SB08	0.4-0.6	3/03/2014	-	0.9	3.8	0.2	1.3	-	-	-	-	-	0.08
ES1404580003	VP_SB07_0.2	VP_SB07	0.1-0.3	3/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404580005	VO_MW16_0.2	VO_MW16	0.1-0.3	3/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404580010	VO_SB03_0.2	VO_SB03	0.1-0.3	3/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881002	VP_SB06_3.0	VP_SB06	2.9-3.1	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881003	VP_SB05_3.0	VP_SB05	2.9-3.1	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881010	VP_SB07_3.0	VP_SB07	2.9-3.1	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881011	VP_SB08_3.0	VP_SB08	2.9-3.1	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881015	VP_SB02_0.2	VP_SB02	0.1-0.3	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881019	VP_SB03_0.2	VP_SB03	0.1-0.3	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881027	VP_SB04_2.0	VP_SB04	1.9-2.1	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881029	VP_MW02_2.0	VP_MW02	1.9-2.1	5/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881030	VO_MW01_0.2	VO_MW01	0.1-0.3	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881032	VO_MW12_0.2	VO_MW12	0.1-0.3	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881034	VO_SB01_0.2	VO_SB01	0.1-0.3	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1404881036	VP_MW02_0.2	VP_MW02	0.1-0.3	4/03/2014	-	-	-	-	-	-	-	-	-	-	-
ES1405227002	VE_SB01_1.5	VE_SB01	1.4-1.6	10/03/2014	<0.1	14.3	1.3	0.1	0.7	-	-	-	-	-	0.05
ES1405227013	VA_MW04_1.0	VA_MW04	0.9-1.1	10/03/2014	<0.1	0.8	0.5	<0.1	0.2	-	-	-	-	-	0.04
ES1405660034	VA_MW01_0.5	VA_MW01	0.4-0.6	13/03/2014	<0.1	2.4	1.8	0.1	0.4	-	-	-	-	-	0.08
ES1405739006	VB_MW02_0.5	VB_MW02	0.4-0.6	14/03/2014	-	4	1.7	<0.1	0.3	-	-	-	-	-	-
ES1406139002	VC_MW01_4.0	VC_MW01	3.9-4.1	19/03/2014	0.2	0.2	1	<0.1	0.6	-	-	-	-	-	0.06
ES1405525006	VC_MW02_1.0	VC_MW02	0.9-1.1	12/03/2014	0.2	0.5	1.9	<0.1	0.5	-	-	-	-	-	0.09
ES1405660017	VD_MW04_2.0	VD_MW04	1.9-2.1	13/03/2014	<0.1	0.3	5.2	<0.1	0.6	-	-	-	-	-	0.19
ES1405879004	VD_MW05_1.0	VD_MW05	0.9-1.1	17/03/2014	<0.1	0.7	1.2	<0.1	0.4	-	-	-	-	-	-
ES1406139001	VD_MW05_5.0	VD_MW05	4.9-5.1	19/03/2014	<0.1	0.2	2	<0.1	0.6	-	-	-	-	-	0.07
ES1406140019	VG_MW02_1.5	VG_MW02	1.4-1.6	19/03/2014	0.2	0.1	1.7	<0.1	0.6	-	-	-	-	-	0.06
ES1405739002	VI_MW01_0.5	VI_MW01	0.4-0.6	14/03/2014	-	0.4	0.6	<0.1	0.1	40	-	20	20	-	-
ES1405739007	VI_MW01_2.0	VI_MW01	1.9-2.1	14/03/2014	-	-	-	-	-	80	-	40	20	-	-
ES1405739008	D01_140314NO	VI_MW01	1.9-2.1	14/03/2014	-	-	-	-	-	80	-	50	10	-	-
ES1406339006	VI_MW02_0.5	VI_MW02	0.4-0.6	21/03/2014	-	-	-	-	-	89	-	-	-	-	-
ES1406339007	VI_MW02_1.7	VI_MW02	1.6-1.8	21/03/2014	0.1	<0.1	0.8	<0.1	0.4	-	184	-	-	-	0.06
ES1407203010	VI_SB01_0.1	VI_SB01	0-0.2	31/03/2014	-	-	-	-	-	-	118	-	-	-	-
ES1405660007	VJ_MW04_1.0	VJ_MW04	0.9-1.1	13/03/2014	0.4	<0.1	3.1	<0.1	0.3	-	-	-	-	-	0.06
ES1405525019	VK_MW01_0.5	VK_MW01	0.4-0.6	12/03/2014	<0.1	1.7	1.6	<0.1	0.4	-	-	-	-	-	0.46
ES1405879008	VL_MW01_1.5	VL_MW01	1.4-1.6	17/03/2014	<0.1	<0.1	1.3	<0.1	0.2	-	-	-	-	-	-
ES1406140009	VM_MW01_0.5	VM_MW01	0.4-0.6	19/03/2014	-	-	-	-	-	536	-	-	-	-	-
ES1406140010	VM_MW01_1.5	VM_MW01	1.4-1.6	19/03/2014	<0.1	1.5	3.4	0.2	0.7	-	-	-	-	-	0.08
ES1406280003	VM_MW01_2.0	VM_MW01	1.9-2.1	20/03/2014	-	-	-	-	-	628	-	-	-	-	-
ES1407203001	VM_MW02_0.1	VM_MW02	0-0.2	31/03/2014	-	-	-	-	-	163	-	-	-	-	-
ES1406140016	VM_MW03_1.5	VM_MW03	1.4-1.6	19/03/2014	-	-	-	-	-	202	-	-	-	-	-
ES1406280006	VM_MW03_6.0	VM_MW03	5.9-6.1	20/03/2014	-	-	-	-	-	457	-	-	-	-	-
ES1406140014	VM_MW04_1.0	VM_MW04	0.9-1.1	19/03/2014	-	-	-	-	-	126	-	-	-	-	-
ES1406590032	VM_MW04_3.0	VM_MW04	2.9-3.1	25/03/2014	-	-	-	-	-	127	-	-	-	-	-
ES1407203002	VM_MW05_0.1	VM_MW05	0-0.2	31/03/2014	-	-	-	-	-	281	-	-	-	-	-
ES1407203003	VM_SB01_0.01	VM_SB01	0-0.11	31/03/2014	-	-	-	-	-	329	-	-	-	-	-
ES1406498001	VO_MW08_1.8	VO_MW08	1.7-1.9	24/03/2014	0.1	<0.1	0.7	<0.1	<0.1	-	-	-	-	-	-
ES1406497006	VO_MW17_0.4	VO_MW17	0.3-0.5	24/03/2014	<0.1	3.5	2.2	0.2	0.3	-	-	-	-	-	-
ES1405737008	VS_MW05_0.5	VS_MW05	0.4-0.6	14/03/2014	<0.1	4.9	2.2	0.2	0.9	-	-	-	-	-	0.26
ES1406140004	VS_SB01_1.5	VS_SB01	1.4-1.6	19/03/2014	<0.1	1.3	2.7	0.1	0.9	-	-	-	-	-	0.16
ES1406339003	VT_MW01_1.0	VT_MW01	0.9-1.1	21/03/2014	<0.1	2.6	0.3	<0.1	0.2	-	-	-	-	-	0.33
ES1405879015	VU_MW01_1.5	VU_MW01	1.4-1.6	17/03/2014	<0.1	0.8	1.3	<0.1	0.3	-	-	-	-	-	0.12
ES1406141006	VU_MW05_0.5	VU_MW05	0.4-0.6	19/03/2014	<0.1	1.3	1	<0.1	0.2	-	-	-	-	-	0.27
ES1406590036	VU_MW10_2.2	VU_MW10	2.1-2.3	25/03/2014	<0.1	0.3	0.6	<0.1	0.1	-	-	-	-	-	-
ES1406497004	VU_MW12_1.0	VU_MW12	0.9-1.1	24/03/2014	<0.1	0.8	2.5	<0.1	0.3	-	-	-	-	-	-
ES1406275002	VU_MW13_1.0	VU_MW13	0.9-1.1	20/03/2014	0.1	0.2	0.9	<0.1	0.1	-	-	-	-	-	-
ES1406499003	VU_MW13_3.3	VU_MW13	3.2-3.4	24/03/2014	0.1	<0.1	0.9	<0.1	0.1	-	-	-	-	-	-
<b>Statistical Summary</b>															
Number of Results	25	30	30	30	30	3	12	1	3	3	20				
Number of Detects	8	25	30	7	28	3	12	1	3	3	20				
Minimum Concentration	<0.1	<0.1	0.1	<0.1	<0.1	40	89	5.3	20	10	0.04				
Maximum Concentration	0.4	14.3	5.2	0.2	1.3	80	628	5.3	50	20	1.06				
Average Concentration	0.09	1.5	1.6	0.075	0.4	67	270		37	17	0.2				
Median Concentration	0.05	0.6	1.3	0.05	0.3	80	193	5.3	40	20	0.085				
Standard Deviation	0.082	2.7	1.1	0.052	0.29	23	180		15	5.8	0.24				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances (Detects Only)	0	0	0	0	0	0	0	0	0	0	0				



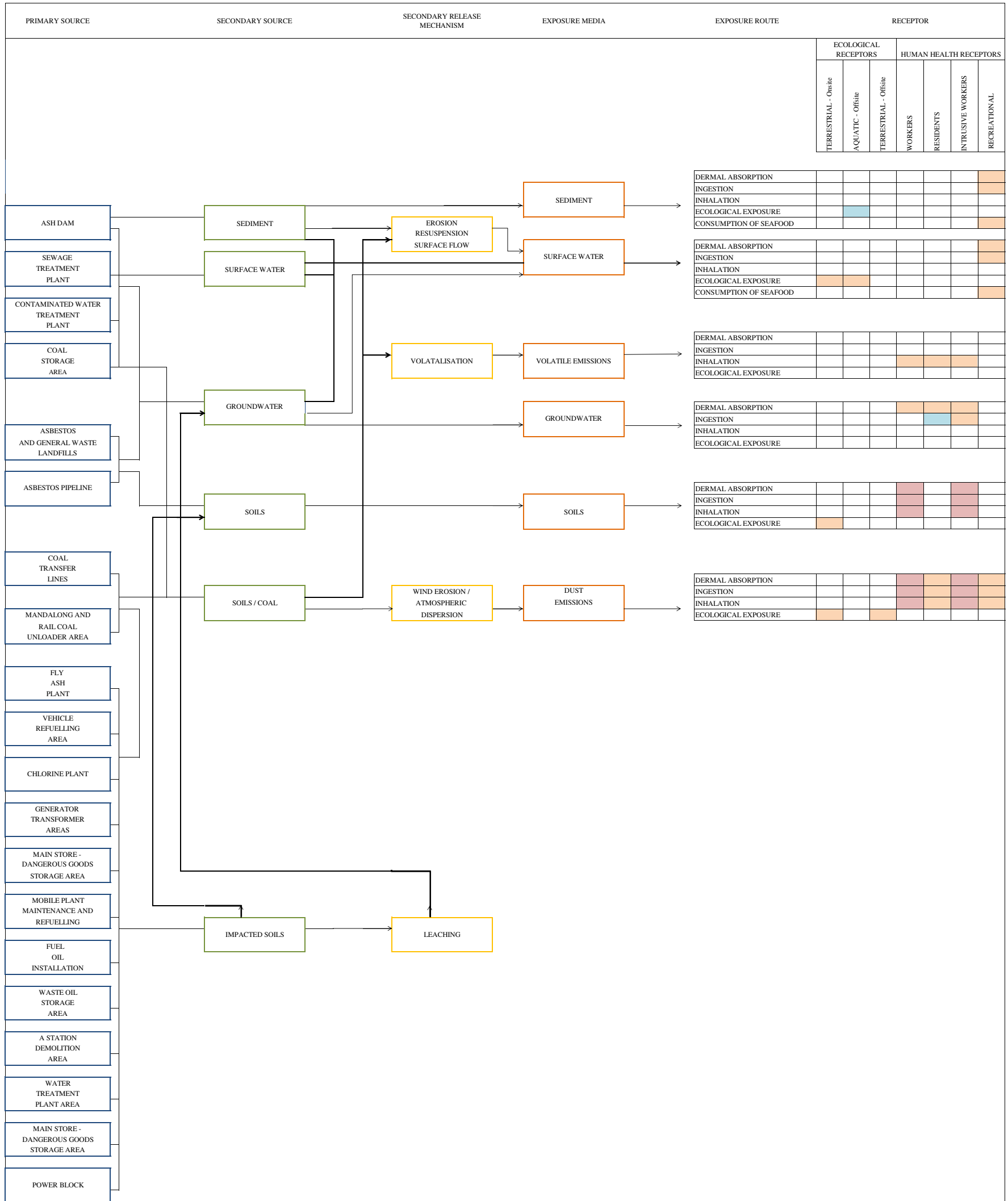
Stage	Area	Sampling Element	SB	MW	SS	SW	Total Locations	Existing MWs	SBs from other AECs	Wells From Adjacent AECs	Total GW Locations (Existing + New)	Total Soil Locations (SB + MW)	Total Water Locations (Existing MW + MW + SW)	Total Soil/Sed Locations (SB + MW + SS)	Operational Constraints and Details of Areal Coverage
Proposed	VA	B Station Power Block	4	8	0	0	12	0	2	4	8	12	8	12	The abandoned locations were positioned to the south west of the B Station in the vicinity of the emergency diesel tank. The locations were abandoned due to the proximity of multiple overhead and underground services and the absence of safe alternate locations to relocate to in the area.
Actual	VA	B Station Power Block	3	6	0	0	9	0	1	2	6	9	6	9	Coverage of this area is provided by VC_MW03 and VB_MW05.
Proposed	VB	Former A Station	3	7	0	0	10	0	1	6	7	10	7	10	Four of the abandoned locations were positioned along the transformer runway, in an area containing deep stormwater drains and very thick concrete rails used to move transformers. One of the abandoned locations was positioned to the east of the administration building in close proximity to a high voltage kiosk which was not shown on . No safe location alternate location was identified to install these locations as area is confined by the canal and former A station.
Actual	VB	Former A Station	1	4	0	0	5	0	0	4	4	5	4	5	Coverage of the southern boundary of this AEC is provided by locations installed within AECs VH and VI. Only two locations were able to be installed on the northern boundary of this AEC.
Proposed	VC	Transformer Area	2	5	0	0	7	0	1	3	5	7	5	7	One soil bore was abandoned and one groundwater monitoring well was installed as a shallow soil bore due to the presence of 4, 2 m diameter cooling water inlet channels running directly under the locations, approximately 3 -4 metres below ground level and hence not able to be picked up by GPR. Alternate locations were not identified due to the presence of the canal to the north and the transformers and ASTs to the south.
Actual	VC	Transformer Area	2	4	0	0	6	0	0	2	4	6	4	6	Sufficient coverage of this area is provided by the locations installed.
Proposed	VD	Main Dangerous Good Store	2	5	0	0	7	0	1	7	5	7	5	7	All locations proposed were completed.
Actual	VD	Main Dangerous Good Store	2	5	0	0	7	0	1	7	5	7	5	7	Sufficient coverage of this area is provided by the locations installed
Proposed	VE	Contaminated Water Treatment Plant	1	3	0	0	4	0	0	3	3	4	3	4	One monitoring well was completed as a shallow soil bore, due to the presence of multiple subservice and overhead services and the presence of a steep slope on one side.
Actual	VE	Contaminated Water Treatment Plant	2	2	0	0	4	0	0	3	2	4	2	4	Sufficient coverage of this area is provided by the locations installed.
Proposed	VF	Waste Oil Storage Area	0	3	0	0	3	0	2	3	3	3	3	3	All locations proposed were completed.
Actual	VF	Waste Oil Storage Area	0	3	0	0	3	0	2	3	3	3	3	3	Sufficient coverage of this area is provided by the locations installed
Proposed	VG	Fuel Oil Installation	0	4	0	0	4	0	1	0	4	4	4	4	All locations proposed were completed.
Actual	VG	Fuel Oil Installation	0	4	0	0	4	0	1	0	4	4	4	4	Sufficient coverage of this area is provided by the locations installed
Proposed	VH	Vehicle Refuelling Depot	0	0	0	0	0	10	0	3	10	0	10	0	All existing monitoring wells were identified
Actual	VH	Vehicle Refuelling Depot	0	0	0	0	0	10	0	2	10	0	10	0	Sufficient coverage of this area is provided by the locations installed
Proposed	VI	Water Treatment Plant Area	2	3	0	0	5	0	0	5	3	5	3	5	Two locations were abandoned and one location was installed as a shallow soil bore due to the proximity of overhead cable trays and underground services.
Actual	VI	Water Treatment Plant Area	1	2	0	0	3	0	0	4	2	3	2	3	Coverage of this area is provided by VT_MW03 and VB_MW01.
Proposed	VJ	Coal Storage Area	4	10	0	0	14	0	6	11	10	14	10	14	All locations proposed were completed.
Actual	VJ	Coal Storage Area	4	10	0	0	14	0	6	11	10	14	10	14	Sufficient coverage of this area is provided by the locations installed
Proposed	VK	Mobile Plant Maintenance and Refuelling Areas	2	7	0	0	9	0	1	5	7	9	7	9	All locations proposed were completed.
Actual	VK	Mobile Plant Maintenance and Refuelling Areas	2	7	0	0	9	0	1	5	7	9	7	9	Sufficient coverage of this area is provided by the locations installed
Proposed	VL	Sewage Treatment Plant	1	3	0	0	4	1	1	2	4	4	4	4	One location was installed as a shallow soil bore, due to the proximity of main electrical services
Actual	VL	Sewage Treatment Plant	1	3	0	0	4	0	1	2	3	4	3	4	Sufficient coverage of this area is provided by the locations installed
Proposed	VM	Chlorine Plant	1	5	0	0	6	0	0	1	5	6	5	6	Two monitoring wells and one soil bore were installed as shallow soil bores due to the presence of multiple underground and overhead services.

Stage	Area	Sampling Element	SB	MW	SS	SW	Total Locations	Existing MWs	SBs from other AECs	Wells From Adjacent AECs	Total GW Locations (Existing + New)	Total Soil Locations (SB + MW)	Total Water Locations (Existing MW + MW + SW)	Total Soil/Sed Locations (SB + MW + SS)	Operational Constraints and Details of Areal Coverage
Actual	VM	Chlorine Plant	3	3	0	0	6	0	0	1	3	6	3	6	VM_MW01 and VM_MW03 provide sufficient coverage of groundwater conditions in this area
Proposed	VN	Rail Coal Unloader Area and Coal Conveyors	5	12	0	0	17	0	6	4	12	17	12	17	Two locations were abandoned due to flooding in the area and therefore lack of access.
Actual	VN	Rail Coal Unloader Area and Coal Conveyors	5	10	0	0	15	0	0	0	10	15	10	15	The abandoned locations were positioned along the eastern boundary of the AEC, away from
Proposed	VO	Ash Dam	3	20	0	0	23	3		5	23	23	23	23	One monitoring well was changed to a soil bore due to proximity to a Jemena gas pipeline. One soil bore was abandoned due to flooding in the area and therefore lack of access
Actual	VO	Ash Dam	2	19	0	0	21	3	11	3	22	21	22	21	Coverage of the area surrounding the abandoned soil bore is provided by VO_MW14. Coverage of the area surrounding the monitoring well which was changed to a soil bore is provided by VU_MW17
Proposed	VP	Asbestos Landfills	10	2	0	0	12	0	0	2	2	12	2	12	All locations proposed were completed.
Actual	VP	Asbestos Landfills	10	2	0	0	12	0	0	2	2	12	2	12	Sufficient coverage of this area is provided by the locations installed
Proposed	VQ	Asbestos Pipeline	12	0	0	0	12	0	0	7	0	12	0	12	All locations proposed were completed.
Actual	VQ	Asbestos Pipeline	12	0	0	0	12	0	0	7	0	12	0	12	Sufficient coverage of this area is provided by the locations installed
Proposed	VR	Sediments in Surrounding Waterways	0	0	23	23	46	0	0	0	0	0	23	23	All locations proposed were completed.
Actual	VR	Sediments in Surrounding Waterways	0	0	23	23	46	0	0	0	0	0	23	23	Sufficient coverage of this area is provided by the locations installed
Proposed	VS	TransGrid Switchyard	1	5	0	0	6	0	2	9	5	6	5	6	All locations proposed were completed.
Actual	VS	TransGrid Switchyard	1	5	0	0	6	0	1	7	5	6	5	6	Sufficient coverage of this area is provided by the locations installed
Proposed	VT	Fly Ash Plant	0	3	0	0	3	0	3	4	3	3	3	3	One monitoring well was changed to a soil bore due to steep topography and truck movements in the area.
Actual	VT	Fly Ash Plant	1	2	0	0	3	0	3	3	2	3	2	3	Coverage of this area is provided by VT_MW03B
Proposed	VU	Buffer Lands and Boundaries	3	20	0	0	23	0	2	15	20	23	20	23	Two monitoring well locations were changed to soil bores and one was abandoned due to proximity to a Jemena gas pipeline and access difficulties.
Actual	VU	Buffer Lands and Boundaries	5	17	0	0	22	0	2	14	17	22	17	22	The two monitoring wells located in close proximity to the Jemena pipeline are on the south western boundary of the Ash Dam. Due to the presence of the pipeline an approximately 2 km stretch of the site boundary has not been covered by groundwater monitoring wells.
<b>Total Proposed</b>			55	133	23	23	211	13			78	93	146	258	
<b>Total Proposed</b>			57	108	23	23	211	13			89	173	118	201	
<b>Difference</b>			2	-25	0	0	0	0			11	80	-28	-57	

Notes:  
 SB = Soil Bore (not including bores converted to MW)  
 MW = Soil Bore converted to Groundwater Monitoring Well  
 SS = Sediment Sample  
 Total Locations = SB + MW (or SS)  
 Existing MWs = based on available reports and assumes wells are operational for sampling.  
 Total MWs = proposed wells + existing wells

Annex C

Refined CSM



**LEGEND**

- Primary Source
- Secondary Source
- Release Mechanism
- Exposure Media
- Incomplete Pathway

- Potential Source Pathway Receptor Linkages identified in the Preliminary ESA but discounted on the basis of the data collected in the Stage 2 ESA
- Potential Source Pathway Receptor Linkages not able to be discounted on the basis of the data collected in the Stage 2 ESA
- Potential Source Pathway Receptor Linkages present in relation to asbestos contamination but ERM understands that these will be managed via Delta's existing asbestos management procedures

Annex D

Borelogs



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **0.609**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.156**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.102**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364359.44**  
 Drill Method: **NDD/AH** Surface Completion: **Gatic** Northing (MGA): **6329884.54**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.1**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy Gravel, grey, dry, fine grained sand, gravel 2-10mm, well sorted, sub-angular, no odour, no staining.  <b>Sandy Clay</b> Light brown, dry, low plasticity, firm, medium coarse grained sand, well sorted, some gravel (<5mm), becoming moist from 0.9 m bgs and wet at 1.1 m bgs.  <b>Sandy Gravel</b> Grey, wet, poorly sorted gravel, non-cohesive (weathered Conglomerate), sub-angular to sub-rounded, 2-100mm, well sorted sand, medium coarse grained, no odour, no staining. Hole collapsed 20cm after drilling.			0	■	DS	Y		0	VA_MW01_0.1	
			0	■	DS	Y		0	VA_MW01_0.5	
			1							
			2							
			3							
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **14** Final Water Level (m bgl): **1.548**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.025**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.852**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **364448.44**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329940.5**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **11.7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, brown, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, angular gravel, heterogenous, no odour, no staining.			0		DS	Y		0	VA_MW02_0.1	
<b>Gravelly Sand</b> Clayey (weathered Conglomerate), brown, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, rounded gravel, heterogenous, density increased with depth, no odour, no staining.			1					0		
<b>Clay</b> Dark brown, hard, dry, non-plastic, heterogenous, no odour, no staining.			1.5					2.5		
<b>Clayey Sand</b> Green grey banded white, dry, dense, non-plastic, fine grained sand.			2					3.1		
<b>Conglomerate</b> With Gravelly Sandstone, green grey, dry, hard, fresh, gravel consists of rounded and subrounded Siltstone, Chert, Quartz.			2		US	Y		8	VA_MW02_2.0	
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

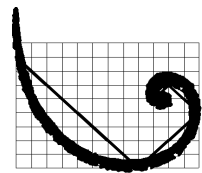
Log By: **GP/KB/WG**

Checked By: **KD**

Page 1 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>14</b>	Final Water Level (m bgl): <b>1.548</b>
Drill Finish Date: <b>18/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.025</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.852</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364448.44</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329940.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
			9							
			10							
			11							
<b>Conglomerate</b> Chert, Quartz and ironstone gravel in Silt, Sandstone			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Page 2 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>14</b>	Final Water Level (m bgl): <b>1.548</b>
Drill Finish Date: <b>18/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.025</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.852</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364448.44</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329940.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			13							
			14							
End of Log			15							
			16							
			17							
			18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **12** Final Water Level (m bgl): **2.642**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.21**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.103**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364433.08**  
 Drill Method: **NDD/PT/SFA/AH** Surface Completion: **Gatic** Northing (MGA): **6329983.36**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey, dry, very dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VA_MW03_0.2	
<b>Clay</b> With traces of sand, grey-brown and brown, moist, soft, high plasticity, grey-brown and orange brown medium stiff, non-plastic from 0.8 m bgs, no odour, no staining.			1		DS	Y		0	VA_MW03_1.0	
<b>Sandy Clay</b> With gravel, grey with orange-brown mottling, medium stiff, medium plasticity, homogenous, no odour, no staining.			2					0.2		
<b>Sandstone</b> Weathered, dry, hard, alluvial sub-angular gravel inclusions sand sub-rounded coarse pebbles (<1cm).			3		US	Y		3.4	VA_MW03_3.0	
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

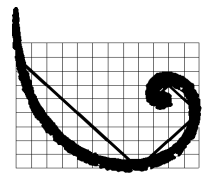
Log By: **GP/CM/KB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>2.642</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.21</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.103</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364433.08</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329983.36</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Conglomerate</b> Consisting of Siltstone, Chert, Sand Quartz, dry, no weathering chips, very hard from 8.5 m bgs.										Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.43**  
 Drill Finish Date: **11/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.386**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.286**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364391.55**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330065.19**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Clayey, brown, moist, dense, fine grained sand-pebbles, poorly sorted, heterogenous, concrete rubble inclusions at 0.3 m bgs, orange-brown from 0.25 m bgs, no odour, no staining.			0		DS	Y		0	VA_MW04_0.1	
<b>Clayey Sand</b> With gravel, brown with some red-brown and grey, moist, medium dense, well sorted, homogenous, grey with red-brown and brown from 0.85 m bgs, moist and coarse grained at 3.0 m bgs, no odour, no staining.			1		DS	Y		0	VA_MW04_1.0	
			2		US	Y		0	VA_MW04_2.0	
<b>Clay</b> Grey, brown/orange mottling, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			3					0.4		
			4					0.2		
<b>Sandy Clay</b> Brown, moist, soft, low plasticity, homogenous, no odour, no staining.			5					0.8		
			6					0.1		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>2.582</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.312</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.16</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364369.58</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330144.54</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.			0		DS	Y		0	VA_MW05_0.1	
<b>Gravelly Sand</b> Clayey, brown, moist, medium dense, fine grained sand, coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			1					0		
<b>Sandy Clay</b> With gravel, grey with red-brown, orange-brown, moist, medium stiff, low plasticity, heterogenous, red-brown with grey from 1.2 m bgs, no odour, no staining.			2					0		
<b>Clay</b> Grey with brown/orange mottling, moist, soft, medium plasticity, homogenous, minor organic components (pocket of black soil, leaves and roots), low plasticity at 3.0 mbgs, no odour, no staining.			3					0.5		
<b>Clayey Sand</b> Gravelly, brown, dry, coarse grained, angular, moderately sorted, no odour, no staining.			4					1.3		
<b>Clay</b> Grey with brown/orange mottling, moist, soft, medium plasticity, homogenous, minor organic components, low plasticity at 3.0 mbgs, no odour, no staining.			5					1.7		
<b>Clayey Sand</b> Brown, slightly moist, medium dense, medium coarse grained, sub-angular, moderately sorted, grey from 5.5 to 5.7 m bgs, no odour, no staining.			6					2		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VA\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>2.582</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.312</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.16</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364369.58</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330144.54</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7		US	Y			VA_MW05_6.0	
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **11.5** Final Water Level (m bgl): **1.243**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.295**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.172**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364460.65**  
 Drill Method: **NDD/PT/SFA/AH** Surface Completion: **Gatic** Northing (MGA): **6330009.69**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey, dry, very dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, brown, moist and angular gravel from 0.15 m bgs, no odour, no staining.			0		DS	Y		0	VA_MW06_0.2	
			0.5		DS	Y		0	VA_MW06_0.5	
<b>Sandy Clay</b> Brown with red-brown mottling, mediu stiff, medium plasticity, homogenous, gravel inclusions (<1cm) at 1.4 m bgs, saturated at 1.5 m bgs, no odour, no staining.			1					0		
			1.8		US	Y		1.6	VA_MW06_1.8	
<b>Sandstone</b> Weathered, dry, hard, alluvial gravel inclusions (<1cm), sub-angular and sub-rounded, light brown Gravelly Chert, Conglomerate with Siltstone and Sandstone, hard, dry, increased in hardness from 10.5 to 12 m bgs.			3					0.2		
			4					0.3		
			5						0.6	
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

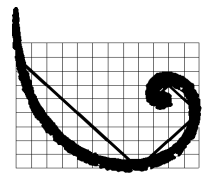
Log By: **GP/CM/KB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VA\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>11.5</b>	Final Water Level (m bgl): <b>1.243</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.295</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.172</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364460.65</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330009.69</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
			9							
			10							
			11							
End of Log			12							

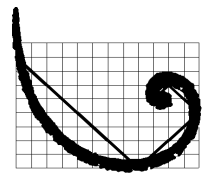
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VA\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **0.95** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.183**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **3.183**  
 Driller: **Jeff Black** Casing Diam. (mm): **NA** Easting (MGA): **364332.12**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329866.5**  
 Hole Type: **Soil bore** Water Strike (m bgl): **0.9**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy Gravel, grey, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VA_SB01_0.1	
					DS	Y		0	VA_SB01_0.25	
								0		
<b>Fill</b> Gravelly Sandy Clay, brown, moist, dense, fine grained sand, coarse grained gravel, heterogenous, unknown odour, black staining.					DS	Y		0	VA_SB01_0.8	
<b>Gravelly Sand</b> Clayey, light orange-brown, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, sub-rounded, homogenous, no odour, no staining.			1							Refusal on Conglomerate.
<b>Conglomerate</b> Grey, hard, fine grained sand, medium coarse grained gravel, moderately sorted, no odour, no staining.			2							
			3							
			4							
			5							
			6							
End of Log										

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**




ID: **VA\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **1.05** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **11/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.216**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **3.216**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **364401.83**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329919.35**  
 Hole Type: **Soil bore** Water Strike (m bgl): **1.0**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey-brown, dry, dense, fine grained sand, coarse grained gravel, poorly sorted, angular gravel.  <b>Sandy Clay</b> Grey-brown, moist, medium stiff, low plasticity, homogenous, no odour, no staining.  <b>Clayey Sand</b> Red-brown and grey, moist, medium dense, fine grained, well sorted, rounded, homogenous, Sandstone at 1.05 m bgs, no odour, no staining.	  		0	■	DS	Y		0	VA_SB02_0.1	
			0.5	■	DS	Y		0	VA_SB02_0.5	
			1	■	DS	Y		0	VA_SB02_1.0	
End of Log			2							Refusal on Sandstone.
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**


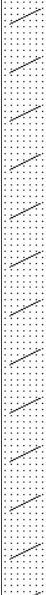
ID: **VA\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **11/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.314**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **3.314**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **364403.86**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6330112.5**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.  <b>Clayey Sand</b> With gravel, red-brown and orange-brown, moist, medium dense, fine medium coarse sand with some fine-coarse gravel, well sorted, homogenous, no odour, no staining.	  		0	■	DS	Y		0	VA_SB03_0.1		
				■	DS	Y		0	VA_SB03_0.5		
			1						0		
			2						0.2		
			3	■	US	Y		1.5	VA_SB03_3.0		
End of Log			4								
			5								
			6								

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VB\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **1.062**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **2.987**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.83**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364135.77**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329790.1**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b>			0							
<b>Sand</b> Fill, with large gravels, grey wet (from NDD), poorly sorted, non-cohesive, loose, no staining, no odour			7.6		DS	Y		7.6	VB_MW01_0.2	
			21.1		DS	Y		21.1	VB_MW01_0.5	
<b>Gravel</b> (roadbase) with some sand and clay, grey, wet (from NDD), poorly sorted, angular gravels, no staining, no odour			4.9					4.9		
<b>Gravelly Sand</b> Orange brown, wet (from NDD), well sorted, loose, no odours or staining			0.4					0.4		
<b>Sandy Clay</b> With gravel, grey, soft, moist, reworked natural, no staining, no odour			2		US	Y		0.4	D02_140314NO	
<b>Clayey Sand</b> Yellow orange brown and some grey, moist, occasional gravel, fine to medium grained, poorly sorted, sub angular, saturated from 3m bgs			0.2					0.2		
			4					0.4		
			5					0.5		
			6					1.1		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **NO**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VB\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **1.266**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.856**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.775**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364057.63**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329792.12**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> With gravel, yellow-brown, moist, poorly sorted, non-plastic, loose, grading to red-brown, angular gravel from 0.5 m bgs, no odour, no staining.			0		DS	Y			VB_MW02_0.2	
					DS	Y			VB_MW02_0.5	
<b>Sandy Clay</b> Gravel, grey with some red-brown, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			1					0		
								0		
<b>Sandy Clay</b> Grey and red-brown, moist, soft, low plasticity, homogenous, no odour, no staining.			2					0		
								0		
<b>Sandy Clay</b> Red with white and orange mottled, wet, stiff, low plasticity, fine grained sand, well sorted, no odour, no staining.			3		US	Y		0	VB_MW02_3.0	
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VB\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **5.1** Final Water Level (m bgl): **2.529**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.35**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.206**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **363940.53**  
 Drill Method: **NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6329864.67**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2.9**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Light brown, dry, garden filled, very well sorted, non-cohesive, organics throughout, grass rootlets, no odour, no staining.			0		DS	Y		0	VB_MW03_0.2	
<b>Sandy Clay</b> Light brown/yellow, moist, well sorted, non-cohesive, gravel inclusions, sub-rounded up to 25mm.			0		DS	Y		0	VB_MW03_0.5	
<b>Clay</b> White, moist, firm, medium plasticity, red and orange mottled, occasional gravel <200mm at 1.3 m bgs.			1					0		
<b>Sandy Clay</b> Grey mottled orange brown and dark brown, moist, hard, medium plasticity, occasional gravel up to 20mm, rounded to sub-rounded.			2		US	Y		0	VB_MW03_1.5	
<b>Sandy Silt</b> Gravelly, dark brown, moist, hard, wood pieces present, fine coarse sand, fine medium gravel, angular to sub-angular, no plasticity.			3					4.3		
<b>Sandy Silt</b> Light grey, moist, non-plastic, wood present, fine grained sand.			3					11.4		
<b>Silty Sand</b> Light grey, wet, non-plastic, occasional gravel, rounded to sub-angular up to 20mm.			4		US	Y		23.5	VB_MW03_3.9	
<b>Sand</b> Occasional gravel, fine grained sand, light brown to grey/brown silt, wet, loose, occasional gravel up to 10mm, sub-rounded to angular, fine medium grained sand.			4					13.3		
			5					11.3		
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VB\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>20/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>2.202</b>
Drill Finish Date: <b>25/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>2.913</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.811</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364126.08</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330011.88</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Moderate condition, no staining.			0		DS	Y		0	VB_MW05_0.25	
<b>Fill</b> Gravelly clayey sand, brown, moist, loose, fine sand - coarse gravel, poorly sorted, heterogenous, grey-brown at 0.3 - 0.8m bgs, greenish grey at 0.8 - 1.1m bgs, no odour, no staining.			1		DS	Y		0	VB_MW05_1.0	
<b>Fill</b> Gravelly sandy clay, greenish-grey, moist, stiff, low plasticity, homogenous, no odour, no staining.			2					0		
<b>Sandy Clay</b> Gravelly, grey orange brown, moist, medium stiff, low plasticity, heterogenous, some red brown from 1.3m bgs, no odour, no staining.			2		US	Y		1	VB_MW05_2.0	
<b>Clay</b> Grey with red-brown and minor orange-brown, red-brown gravel, moist, medium stiff, high plasticity, heterogenous, trace of gravel inclusions at 3.4m bgs (<10mm), no odour, no staining.			3					0.4		
			4					0.3		
<b>Clay</b> Grey, purple / red mottling in sections, moist, hard, very dense, non-plastic, homogenous, no odour, no staining.			5					0.5		
			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VB\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **2.7** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **27/03/2014** Hole Diam. / Width (mm): **900** Elevation (Ground): **2.947**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **2.947**  
 Driller: **Eric Grima** Casing Diam. (mm): **NA** Easting (MGA): **364114.78**  
 Drill Method: **NDD/PT** Surface Completion: **Backfill** Northing (MGA): **6329777.34**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, damp, loose, fine, well sorted, homogeneous, no odour, no staining			0		DS	Y		0	VB_SB01_0.35	
<b>Concrete</b>					DS	Y		0	VB_SB01_0.5	
<b>Fill</b> Gravelly clayey sand, brown with black gravels, moist, dense, fine sand - coarse gravel, poorly sorted, heterogeneous, no odour, no staining			1							
<b>Gravelly Clayey Sand</b> Red - brown, moist, medium dense, fine sand - medium coarse gravels, moderately sorted, rounded gravels, homogeneous, no odour, no staining			1		US	Y		0	VB_SB01_1.5	
<b>Sandy Clay</b> With gravel, light grey with red - brown, medium stiffness, low plasticity, homogeneous, no odour, no staining			2					0.1		
<b>Clay</b> Light grey and orange brown, stiff, moist, slightly plastic, no odour, no staining			2		US	Y		0.1	VB_SB01_2.7	
End of Log			3							Refusal on sandstone
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VC\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **6.3** Final Water Level (m bgl): **2.163**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.006**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.933**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364153.47**  
 Drill Method: **CC/NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330044.11**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Medium condition, no staining.			0							
<b>Concrete</b>					DS	Y		0	VC_MW01_0.25	
<b>Clayey Sand</b> Gravelly, orange brown, moist, dense, fine sand, medium coarse gravel, moderately sorted.					DS	Y		0	VC_MW01_0.5	
<b>Clayey Sand</b> Gravelly, brown, poorly sorted, heterogenous, no odour, no staining.			1					0		
<b>Sandy Clay</b> Gravelly, brown with red-brown and grey, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.								0		
<b>Sandy Clay</b> Grey with red staining, soft, moist, medium plasticity, very low recovery (10%) due to compression of Clay between 1.5 to 2.7 m bgs.			2					0.3		
								0.4		
<b>Sandy Clay</b> Grey with red staining, very soft, moist, high plasticity, no odour.			3					0.3		
								0.2	VC_MW01_4.0	
<b>Sandy Clay</b> Grey with red staining, soft, moist, high plasticity, no odour.			5					0.4		
<b>Clay</b> Grey with red staining, stiff, becoming more stiff with depth, moist, high plasticity.			6					0.4		

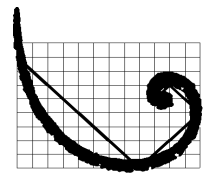
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/JE**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VC\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>2.163</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.006</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.933</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364153.47</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330044.11</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/JE**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VC\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **2.49**  
 Drill Finish Date: **12/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.086**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.976**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364320.52**  
 Drill Method: **NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6330156.45**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2.2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Silty Sand, brown, damp, loose, finer grained, well sorted, homogenous, grass roots throughout, no odour, no staining.  <b>Sandy Clay</b> Gravelly, brown with grey mottling, moist, soft, medium plasticity, homogenous, moist and brown at 2.0 m bgs, no odour, no staining.			0	■	DS	Y		0	VC_MW02_0.1	
			0	■	DS	Y		0	VC_MW02_0.5	
			1	■	DS	Y		0	VC_MW02_1.0	
								0		
<b>Clay</b> Grey, moist, medium stiff, low plasticity, homogenous, brown mottling and slight H2S odour at 4.2 m bgs, no odour, no staining. Hole collapse from 4.0 to 5.0 m bgs.			2					1.6		
			3	■	US	Y		2.5	VC_MW02_3.0	
End of Log			4					3		
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VC\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **31/03/2014**  
 Drill Finish Date: **31/03/2014**  
 Drill Co: **ERM**  
 Driller: **Gavin Powell**  
 Drill Method: **NDD**  
 Hole Type: **Monitoring well**

Total Depth (m): **0.15**  
 Hole Diam. / Width (mm): **150**  
 Casing Type: **NA**  
 Casing Diam. (mm): **NA**  
 Surface Completion: **Backfilled**  
 Water Strike (m bgl): **NA**

Final Water Level (m bgl): **NA**  
 Elevation (Ground): **Not Recorded**  
 Elevation (Case): **Not Recorded**  
 Easting (MGA): **364925**  
 Northing (MGA): **6330140**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand with traces of gravel, light brown, damp, loose, fine sand with traces of fine medium coarse gravel, well sorted, homogenous, no odour, no staining.			0		DS	Y		0	VC_MW03_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VC\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **1.791**  
 Drill Finish Date: **12/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.962**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.916**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364254.83**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330119.22**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Medium condition, no staining.			0		DS	Y		0		
<b>Concrete</b> Good condition, no staining.			0.4		DS	Y		0	VC_MW04_0.4	
<b>Gravelly Sand</b> Clayey, brown, moist, medium dense, fine sand, coarse gravel, moderately sorted, homogenous, no odour, no staining.			0.5		DS	Y		0	VC_MW04_0.5	
<b>Sandy Clay</b> Gravelly, orange-brown with brown and grey, moist, soft, medium plasticity brown and moist at 2.0 m bgs, black, saturated and high organic content at 2.8 to 3.0 m bgs, weathered sandstone inclusions at 3.8 m bgs, no odour, no staining.			1					0		
			2					0.9		
			3		US	Y		1.3	VC_MW04_3.0	
			4					1.2		Target depth achieved
End of Log			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VC\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **2.066**  
 Drill Finish Date: **12/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.96**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.789**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364274.02**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330132.63**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.8**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no staining.			0					0		
<b>Sandstone</b> Grey-brown, damp, hard, fine grained, well sorted, homogenous, no odour, no staining.			0.5		DS	Y		0	VC_MW05_0.5	
<b>Sandy Clay</b> Gravelly, orange-brown with brown and grey, moist, soft, medium plasticity, homogenous, no odour, no staining.			1		DS	Y		0	VC_MW05_1.0	
								0		
<b>Gravelly Sand</b> Black/grey, dry, loose, coarse gravel, poorly sorted, angular, no odour, no staining.			2					0.5		
<b>Sandy Clay</b> Gravelly, brown with orange mottling, soft, medium plasticity, intermixed structure, inclusion of black gravel.			3		US	Y		1.9	VC_MW05_3.0	
								0.7		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VC\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **31/03/2014** Total Depth (m): **0.15** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **31/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Gavin Powell** Casing Diam. (mm): **NA** Easting (MGA): **364297**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6330143**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey/brown, moist, medium dense, fine sand, coarse gravel, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VC_SB03_0.1	Major underground services in area. Shallow soil sample only
End of Log			1							
			2							
			3							
			4							
			5							
			6							

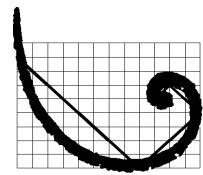
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VD\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **3.5** Final Water Level (m bgl): **0.934**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.766**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.702**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363910.75**  
 Drill Method: **CC/NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6329734.53**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no odour, no staining.			0							
<b>Sand</b> Yellow, moist, filled, fine grained, very well sorted, no odour, no staining.			0.1		DS	Y		0.1	VD_MW01_0.3	
			0.5		DS	Y		0	VD_MW01_0.5	
<b>Sandy Clay</b> Grey, moist, cohesive, uniform, fine grained sand, becoming more coarse with depth, gravel <5mm becoming present from 1.4 m bgs, saturated at 1.5 m bgs, orange mottling at 3.0 m bgs.			0.7					0.7		
			3.0		US	Y		0.9	VD_MW01_3.0	
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VD\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **3.5** Final Water Level (m bgl): **0.302**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.342**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **4.056**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363952.72**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329639.91**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Brown/orange, moist, medium dense, medium plasticity, medium coarse grained, some gravel up to 5mm, becoming stiff at 0.4 m bgs.			0		DS	Y		0	VD_MW02_0.2	
					DS	Y		0	VD_MW02_0.5	
<b>Sandy Clay</b> Orange, moist, medium stiff, low plasticity, fine grained, well sorted, wet from 1.0 mbgs, colour change to red at 1.3 to 1.45 m bgs, white at 1.45 m bgs.			1					0		
								0		
<b>Sandy Clay</b> Grey, saturated, low plasticity, soft, low plasticity, heterogenous, no odour, no staining.			2					0.8		
								0.8		
<b>Sandy Clay</b> Brown with orange mottling, saturated, stiff, low plasticity, homogenous, no odour, no staining.			3		US	Y		6.3	VD_MW02_3.0	
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VD\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **3.5** Final Water Level (m bgl): **0.677**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.842**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.72**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363962.53**  
 Drill Method: **CC/NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6329686.34**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no odour, no staining.			0							
<b>Sand</b> Yellow, moist, filled, base for slab.					DS	Y		0	VD_MW03_0.3	
					DS	Y		0	VD_MW03_0.5	
<b>Sandy Clay</b> Orange mottled red and white, low plasticity, low density, medium coarse grained and well sorted sand.			1					0		
								0		
<b>Sandy Clay</b> Gravelly, brown, moist, very soft, low plasticity, heterogenous, grey, saturated and medium plasticity at 2.0 m bgs, orange/brown with sub-angular gravel inclusions (<1cm), no odour, no staining.			2		US	Y		1.1	D01_130314_CM	
End of Log			3					1		
End of Log			4							
End of Log			5							
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VD\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **1.066**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.808**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.672**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363945.65**  
 Drill Method: **CC/NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329762.26**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no odour, no staining.			0		DS	Y		0	VD_MW04_0.2	
<b>Sand</b> Yellow, moist, filled, base for slab, fine medium grained, very well sorted and uniform, no odour, no staining.			0.5		DS	Y		0	VD_MW04_0.5	
<b>Sandy Clay</b> Yellow/brown, moist, non-cohesive, gravel poorly sorted, angular to sub-rounded, 2mm to 150 mm, coarse sand, well sorted, no odour, no staining.			1					0		
<b>Sandy Clay</b> Grey, moist, cohesive, medium dense, slightly crumbles, fine grained and well sorted, no odour, no staining.			2					0.2		
<b>Sandy Clay</b> Gravelly, grey, damp, stiff, low plasticity, homogenous, moist at 2.0 m bgs, saturated and medium plasticity at 2.5 m bgs, brown at 3.9 m bgs, no odour, no staining.			2		US	Y		0.7	VD_MW04_2.0	
			3					0.9		
			4					0.7		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VD\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>4.122</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>6.679</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>6.617</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363879.91</b>
Drill Method: <b>CC/NDD/PT</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329691.92</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey-brown, dry, dense, fine grained sand, coarse grained gravel, moderately sorted, heterogenous, damp and orange-brown from 0.2 to 0.4 m bgs, no odour, no staining.			0		DS	Y		0	VD_MW05_0.1	
<b>Fill</b> Gravelly Sandy Clay, brown with red-brown and grey, medium stiff, medium plasticity, heterogenous, no odour, no staining.			1		DS	Y		0	VD_MW05_1.0	
<b>Silty Clay</b> Dark brown, moist, soft, low plasticity, homogenous, tree roots inclusions, no odour, no staining.			2					0		
<b>Clay</b> Grey with brown, moist, soft, high plasticity, homogenous, occasionally gravel, no odour, no staining.			3					0.7		
<b>Clay</b> Grey, moist, medium stiff, medium plasticity, occasionally roots, no odour, no staining.			4					0.9		
<b>Sandy Clay</b> Light grey, moist, soft, low plasticity, becoming wet at 4.5 m bgs, collapse from 6.0 to 6.3 m bgs, H2S odour, no staining.			5					1.3		
			6					3		
			5		US	Y		5.9	VD_MW05_5.0	
			6					1.1		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/JE**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**



**ID: VD\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>4.122</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>6.679</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>6.617</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363879.91</b>
Drill Method: <b>CC/NDD/PT</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329691.92</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
										Target depth achieved
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

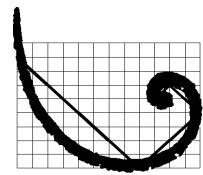
Log By: **GP/JE**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VD\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **364014**  
 Drill Method: **CC/NDD** Surface Completion: **Backfilled** Northing (MGA): **6329685**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **1.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no odour, no staining.			0		DS	Y		0.1	VD_SB02_0.2	
<b>Sand</b> Yellow, moist, filled, well sorted, base for slab.			0		DS	Y		0	VD_SB02_0.5	
<b>Sandy Clay</b> Red mottled orange and white, moist, medium stiff, low plasticity, medium coarse grained and moderately sorted sand, saturated at 1.5 m bgs, no odour, no staining.			1					0		
<b>Sandy Clay</b> Grey, saturated, low plasticity, soft, homogenous, orange mottling at 2.7 m bgs, no odour, no staining.			2		US	Y		0.9	VD_SB02_2.0	
			3					1.3		Target depth achieved
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VE\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.15</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Jeff Black</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364353</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6330208</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Sand with gravel, brown, moist, loose, fine grained with minor coarse gravel, well sorted, homogenous, no odour, no staining.  End of Log			0			Y		0	VE_MW01_0.1	Multiple services at location, shallow soil sample only
			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VE\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **1.424**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **1.685**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **1.606**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364374.5**  
 Drill Method: **NDD/SFA** Surface Completion: **Gatic** Northing (MGA): **6330238.83**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.4**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.			0		DS	Y		0	VE_MW02_0.1	
<b>Fill</b> Sandy Clay with gravel, brown, moist, medium stiff, low plasticity, heterogenous, no odour, no staining.			1					0		
<b>Sandy Clay</b> Sandy Clay with gravel, grey with red-brown and orange brown mottled, moist, medium stiff, medium plasticity, heterogenous, with sand, brown, moist, medium coarse intermixed, no odour, no staining.			2		DS	Y		0	VE_MW02_1.4	
<b>Sandy Gravel</b> Brown, wet, loose, fine grained sand, coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			3							
<b>Clay</b> White, moist, hard, some sub-rounded gravel (<15mm), plastic.			4							Target depth achieved
End of Log			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VE\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>4</b>	Final Water Level (m bgl): <b>0.801</b>
Drill Finish Date: <b>18/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>1.067</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>1.781</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364471.74</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330307.39</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>1.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Clayey, brown, moist, dense, fine grained sand-pebble, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VE_MW03_0.2	
			0					0		
			1					0		
<b>Sandy Clay</b> With gravel, grey with brown, moist, soft, medium plasticity, homogenous, no odour, no staining.			1.5		DS	Y		0	VE_MW03_1.5	
<b>Clayey Sand</b> With minor gravel banded, light grey and orange, wet, dense, fine grained sand, fine grained gravel, rounded (8mm), slightly plastic.			2					0.9		
			3					1		
			4					0.8		
			4					0.5		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VF\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.038**  
 Drill Finish Date: **11/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.52**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.432**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364383.12**  
 Drill Method: **NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6330200.85**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.			0					0		
<b>Fill</b> Gravelly Sandy Clay, brown, moist, medium stiff, medium plasticity, hetero genous, grey, red-brown and black inclusions from 0.8 m bgs, grey with red-brown, brown-black inclusions from 1.0 m bgs, no odour, no staining.			1		DS	Y		0	VF_MW01_1.0	
<b>Sandy Clay</b> Grey, dry, soft, low plasticity, homogenous, dark brown/black with gravel inclusions (<1cm) at 2.0 m bgs, no odour, no staining.			2					0.3		
<b>Clay</b> Grey, moist, soft, medium plasticity, homogenous, moist at 4.5 m bgs, no odour, no staining.			3					0.8		
			4		US	Y		0.7	VF_MW01_4.0	
			5					0.7		
			6					0.8		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VF\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>3.7</b>	Final Water Level (m bgl): <b>3.244</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.114</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.145</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364369.86</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330185.67</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>1.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.  <b>Fill</b> Sandy Clay with gravel, brown with red-brown mottled, medium stiff, medium plasticity, heterogenous, brown with grey-brown from 0.6 to 1.1 m bgs, grey with red-brown, brown mottled from 1.1 m bgs, no odour, no staining.			0		DS	Y		0	VF_MW02_0.1	
			1					0		
			2		US	Y		0	VF_MW02_2.0	
<b>Clay</b> Dark brown, wet, medium stiff, medium plasticity, heterogenous, some organic matter throughout, sticks and wood matter, no odour, no staining.			3					0		
			4					0		
			5					0		
			6					0		
End of Log										

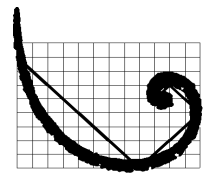
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VF\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014**      Total Depth (m): **6.5**      Final Water Level (m bgl): **1.422**  
 Drill Finish Date: **11/03/2014**      Hole Diam. / Width (mm): **150**      Elevation (Ground): **2.952**  
 Drill Co: **Numac**      Casing Type: **UPVC**      Elevation (Case): **2.765**  
 Driller: **Rohan Harding**      Casing Diam. (mm): **50**      Easting (MGA): **364389.32**  
 Drill Method: **NDD/PT/SFA**      Surface Completion: **Monument**      Northing (MGA): **6330196.84**  
 Hole Type: **Monitoring well**      Water Strike (m bgl): **4**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, brown, moist, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.			0					0		
<b>Fill</b> Clayey Sand with gravel, moist, medium dense, fine grained.			0.5		DS	Y		0	VF_MW03_0.5	
<b>Fill</b> Sandy Clay with gravel, moist, grey with red-brown and some brown mottled, medium stiff, medium plasticity, heterogenous, concrete rubble inclusions at 0.4 to 0.6 m bgs, no odour, no staining.			1					0		
<b>Sandy Clay</b> Grey with red-brown and some brown-black, dark grey mottling, moist, soft, high plasticity, homogenous, orange/red mottling and medium plasticity at 3.5 m bgs, no odour, no staining.			2		US	Y		0.3	VF_MW03_2.0	
			3					0.2		
<b>Sandy Clay</b> Grey, red mottling, moist, medium stiff, medium plasticity, heterogenous, brown at 5.6 m bgs, moist and high plasticity at 6.2 m bgs, no odour, no staining.			4					0.2		
			5					0.9		
			6					0.9		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VF\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>6.5</b>	Final Water Level (m bgl): <b>1.422</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>2.952</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.765</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364389.32</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330196.84</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **14.8** Final Water Level (m bgl): **9.409**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **16.654**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **16.55**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **364411.68**  
 Drill Method: **NDD/PT/AB** Surface Completion: **Gatic** Northing (MGA): **6329858.1**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Moderate condition, no staining.			0		DS	Y		1.2	VG_MW01_0.1	
<b>Fill</b> Clayey gravelly sand, orange brown with black grey, red brown gravels, damp, very dense, fine sand - coarse gravel, poorly sorted, heterogenous, slightly hydrocarbon-like odour, no odour apparent at 0.2m, no staining.			0.3					0.3		
<b>Clayey Sand</b> Gravelly, light brown with some grey, moist, dense, fine sand - coarse gravel, moderately sorted, homogenous, some red brown from 1.0m bgs, gravel content decreasing with depth, no odour, no staining.			1					0		
<b>Gravelly Sand</b> With clay, light orange brown and grey, moist, dense, fine sand with fine-coarse gravel, moderately sorted, homogenous, very dense at 1.8m bgs, light brown at 3m bgs, no odour, no staining.			2		US	Y		0.2	VG_MW01_1.9	
			3							
			4							
<b>Gravelly Sand</b> Light brown, medium dense, coarse grained, moderately sorted, sub-rounded gravel inclusions (<2cm), brown and moist at 8m bgs, no odour, no staining.			5							
			6							

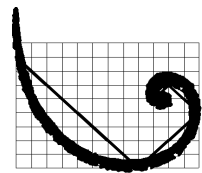
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VG\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>20/03/2014</b>	Total Depth (m): <b>14.8</b>	Final Water Level (m bgl): <b>9.409</b>
Drill Finish Date: <b>26/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.654</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>16.55</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364411.68</b>
Drill Method: <b>NDD/PT/AB</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329858.1</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
			9							
			10							
<b>Sandy Gravel</b> Light brown, moist, medium dense, coarse grained, moderate sorting, sub-angular gravel inclusions (<2cm), no odour, no staining.			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **14.8** Final Water Level (m bgl): **9.409**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **16.654**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **16.55**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **364411.68**  
 Drill Method: **NDD/PT/AB** Surface Completion: **Gatic** Northing (MGA): **6329858.1**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			13							
<b>Gravelly Clay</b> Sandy, moist, stiff, low plasticity, heterogenous, saturated at 14m bgs, conglomerate at 14.6m bgs, no odour, no staining.			14							Target depth achieved
End of Log			15							
			16							
			17							
			18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page **3 of 3**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>7.525</b>
Drill Finish Date: <b>29/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.002</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>16.642</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364324.97</b>
Drill Method: <b>NDD/PT/SSA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329785.51</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Fill</b> Gravelly sand, brown with black, grey, reddish brown and orangey brown gravels, damp, dense, fine sand, coarse gravel, poorly sorted, heterogenous, no odour, no staining.  <b>Gravelly sandy clay</b> Orange to brown with red to brown gravels, moist, friable, low plasticity, homogeneous, no odour, no staining. Some grey from 0.8 mbgl  <b>Gravelly clayey sand</b> Red to brown with grey, damp, dense, fine sand to medium coarse gravels, moderately sorted, homogeneous, no odour, no staining. Grey with red to brown from 3.5 mbgl			0					0			
			0						0		
			1		DS	Y			0	VG_MW02_1.0	
			1		DS	Y			0	VG_MW02_1.5	
			2								
			3					0			
			3.5		US	Y		0.8	VG_MW02_3.5		
			4					0			
			5					0			
			6					0			

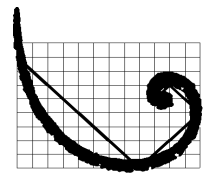
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>7.525</b>
Drill Finish Date: <b>29/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.002</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>16.642</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364324.97</b>
Drill Method: <b>NDD/PT/SSA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329785.51</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					0		
			9					0		
End of Log			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **10** Final Water Level (m bgl): **8.288**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **17.719**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **17.611**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **364389.58**  
 Drill Method: **CC/NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6329784.91**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b>										
<b>Fill</b> Sand with trace gravel (<5% medium and coarse, sub-rounded), dark brown / grey, moist, very loose, fine grained sand, well sorted, hydrocarbon staining.					DS	Y		34	VG_MW03_0.5	
<b>Sandy Clay</b> Trace gravel (<5% sub-rounded and medium coarse), sand (<20% fine grained), orange / brown clay with grey mottling, moist, very soft, high plasticity, some red (oxidised) friable clumps present, slightly hydrocarbon odour, possible staining.			1		DS	Y		13.6	VG_MW03_1.0	
<b>Gravelly Sand</b> Grey light brown, dry, dense, well sorted, sub-angular, becomes pale brown with yellow tinge, sub-angular gravel inclusions (<1 cm), no odour, no staining.			2		US	Y		0	VG_MW03_1.5	
			3					0		
			4							
<b>Sandy Gravel</b> Brown, slightly damp, medium dense, moderately sorted, sub-rounded gravel inclusions (<2 cm), becomes grey/brown at 5m bgs.			5							
<b>Gravelly Sand</b> Grey / brown, slightly damp, dense, coarse grained, moderately sorted, rounded and sub-rounded gravel inclusions (2cm) at 7m bgs, becomes moist at 7.5m bgs.			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VG\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>8.288</b>
Drill Finish Date: <b>26/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>17.719</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.611</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364389.58</b>
Drill Method: <b>CC/NDD/PT</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329784.91</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
			9							
<b>Gravel</b> Traces of sand (<10%), dark brwon / light brown / yellow gravels with light brown sand, moist, coarse grained, poorly sorted, no odour, no staining.			10							
End of Log			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VG\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>13.7</b>	Final Water Level (m bgl): <b>8.005</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.032</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.928</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364374.21</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329744.3</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no odour, no staining.			0		DS	Y		0	VG_MW04_0.2	
<b>Fill</b> Dark grey, very dense, medium grained, very well sorted.			0					0		
<b>Sandy Clay</b> Sand, orange / yellow, moist, medium plasticity, large sands, well sorted, some red gravels up to 80mm, sand content increasing at 1.0m bgs, weathered sandstone gravels red pale yellow becoming more common, no odour, no staining.			1					0		
<b>Sand</b> Some gravel and clay, light grey with yellow/red bands, moist, medium dense, fine sand, fine grained gravel up to 8mm, sub angular, very dense sand and weathered conglomerate at 2.0m, hard at 4.5m bgs, weathered at 5.2m bgs, no odour, no staining.			2					1		
			3							
			4					3.3		
			5					3.5		
			6					3.2		

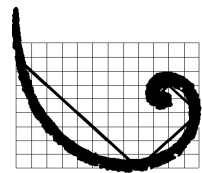
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VG\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>13.7</b>	Final Water Level (m bgl): <b>8.005</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.032</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.928</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364374.21</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329744.3</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
<b>Conglomerate</b> Orange brown to grey, moist, moderately weathered, 3-5mm size in silty sand matrix, angular to sub-rounded gravel, no odour, no staining.			8							
					US	Y			VG_MW04_8.5	
<b>Conglomerate</b> Predominantly grey, moderately weathered, 3-20mm size in silty matrix, angular to sub-rounded gravel, no odour, no staining.			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VG\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>13.7</b>	Final Water Level (m bgl): <b>8.005</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.032</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.928</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364374.21</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329744.3</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			13							
End of Log			14							
			15							
			16							
			17							
			18							

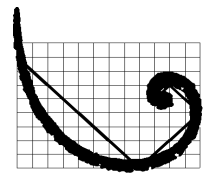
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VI\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **3.9** Final Water Level (m bgl): **1.151**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.929**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.828**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364130.96**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329810.05**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.6**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Yellow/brown with silt, topsoil, medium grained, poorly sorted, subangular, moist, no odour, rootlets present					DS	Y		0.4	VI_MW01_0.2	
					DS	Y		0.5	VI_MW01_0.5	
<b>Sandy Clay</b> Red with grey inclusions, dry, soft, low plasticity, occasional rounded gravels (5-10mm) no odours, no staining. Becoming moist from 1.0m			1					0.1		
								0		
<b>Sandy Gravelly Clay</b> Red-brown, moist, loose, well sorted, fine gravels and coarse sand, angular, no odours/staining. Perched water inflow at 1.6m bgl.			2		US	Y		0.6	VI_MW01_2.0	
								0.3		
<b>Clayey Sand</b> Grey with yellow/orange staining, medium grained, poorly sorted, subangular, moist, no odour, re-worked natural with minor gravels (2mm-12mm)			3					0.2		
								0.1		
								0.1		
								0.2		
			4							
			5							
			6							

Hole collapsed back to 3.9m.  
Well installed at 3.9m

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **NO**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VI\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>21/03/2014</b>	Total Depth (m): <b>4</b>	Final Water Level (m bgl): <b>0.952</b>
Drill Finish Date: <b>28/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.011</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.824</b>
Driller: <b>Eric</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364171.77</b>
Drill Method: <b>CC/NDD/SFA/HSA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329825.62</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>1.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Medium condition, no staining.			0		DS	Y		0	VI_MW02_0.3	
<b>Gravelly Sand</b> Clayey, orange-brown with red-brown and grey gravel, dense, fine grained sand, coarse grained gravel, moderately sorted, homogenous, dark brown from 0.45 m bgs, no odour, no staining.			0.5		DS	Y		0	VI_MW02_0.5	
<b>Sandy Clay</b> Gravelly, grey, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			1					0		
			1.7		DS	Y		0	VI_MW02_1.7	
<b>Gravelly Sand</b> Grey with orange-brown, very dense, ine grained sand, coarse grained gravel, well sorted, homogenous, no odour, no staining.			2					0		
			3							
			4							
End of Log			4							Refusal on Conglomerate.
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

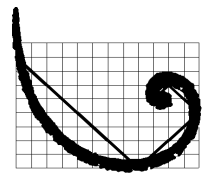
Log By: **GP/KB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VI\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.2</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Jeff Black</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364187</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329814</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand with clay and gravel, brown, moist, loose, fine with minor coarse grained gravel, well sorted, homogenous, no odour, no staining.			0			Y		0	VI_SB01_0.1	Multiple services in area. Shallow soil sample only
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

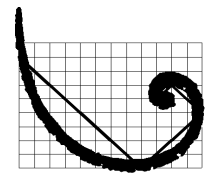
Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **7.5** Final Water Level (m bgl): **2.756**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **10.555**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **11.339**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364014.3**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329504.99**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Grey-brown, damp, loose, fine grained sand, coarse grained gravel, moderately sorted, sub-rounded to sub-angular gravel, homogenous, no odour, no staining. no odour, no staining.			0		DS	Y		0	VJ_MW01_0.2	
<b>Clayey Sand</b> Grey-brown with orange-brown mottled, very dense, fine medium coarse grained sand, well sorted, homogenous, no odour, no staining.			1					0		
<b>Sandy Clay</b> Gravelly, light brown with orange-brown gravel, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			2					0		
<b>Sandy Clay</b> With gravel, red-brown with light brown, moist, medium stiff, medium plasticity, homogenous, grey with red-brown and orange-brown and low plasticity from 1.2 m bgs, no odour, no staining.			3					0		
<b>Clay</b> Red and white with orange mottled, moist, very stiff, high plasticity, homogenous, some gravel at 5.0 m bgs, sub-rounded, well sorted grain size <10mm, no odour, no staining.			4					0		
			5		US	Y		0	VJ_MW01_5.0	
<b>Sandy Clay</b> Brown with orange, white and red, low plasticity, medium coarse grained sand, well sorted, some			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>2.756</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.555</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>11.339</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364014.3</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329504.99</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>5</b>	Final Water Level (m bgl): <b>4.243</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>7.872</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>7.704</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363931.04</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329619.48</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>3</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Good condition, no staining			0					0		
<b>Gravelly Sand</b> Fill, light brown, moist, very dense, fine sand to coarse gravel, poorly sorted, sub-rounded gravels, heterogenous, no staining, no odour.			0.5		DS	Y		0	VJ_MW02_0.5	
<b>Gravelly Clayey Sand</b> Red-brown and grey, moist, medium dense, fine sand - coarse gravel, moderately well sorted, heterogenous, no staining, no odour. Brown from 0.8m.			1					0		
			1.5					0		
			2					1.3		
<b>Sandy Clay</b> Dark brown/grey, moist, soft, low plasticity, homogenous, organic matter present (leaves, twigs, wood) organic odour, no evidence of contamination. Very moist with gravel inclusions at 3.5m bgs			3					2.1		
			4		US	Y		2.6	VJ_MW02_4.0	
<b>Sand</b> Brown/ dark brown, moist, loose, medium coarse, well sorted, angular, no odour or staining.			4.5							
End of Log			5							
			6							

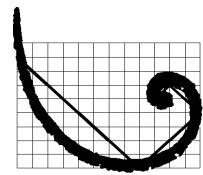
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>3.197</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>9.189</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>9.942</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363693.82</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329495.28</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0					0		
<b>Gravelly Silty Sand</b> Brown, dry, dense, fine sand - coarse gravels, moderately well sorted, subangular, homogenous, no odour, no staining. Moist from 0.2m bgs.			0		DS	Y		0	VJ_MW03_0.5	
<b>Gravelly Sandy Clay</b> Brown with orange-brown, red-brown and grey. Moist, medium stiff, moderately plastic, heterogenous, no odour, no staining. Grey with red, brown staining from 1.3m bgs.			1					0		
<b>Gravelly Clayey Sand</b> Grey Brown, wet, loose, heterogenous, gravel is rounded to subangular, fine, well sorted, fine to coarse sand, no odour, no staining, saturated from 2.1m bgs.			2		US	Y		10.4	VJ_MW03_2.1	
<b>Sandy Gravelly Clay</b> Grey mottled Orange/brown, well sorted, fine to coarse sand, fine, rounded gravel, homogenous, no odour, no staining			3					10.6		
<b>Sandy Gravelly Silt</b> Grey, mottled orange brown, low plasticity, wet, firm, fine to coarse sand, fine gravel, rounded to angular, well sorted, homogenous, no odour, no staining.			4		US	Y		15.2	VJ_MW03_4.0	
<b>Silt</b> Dark brown/black, moist, hard, roots present, sulphur odour.			4							
<b>Clay</b> Dark Grey, moderate plasticity, wet, hard, no odour, no staining			5					13.2		
<b>Clay</b> Dark Grey, moderate plasticity, wet, hard, increase in gravel content at 5.9m bgs, subangular, well sorted, homogenous, no odour, no staining			6					9.7		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Page 1 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>3.197</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>9.189</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>9.942</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363693.82</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329495.28</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **2.129**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **9.812**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **10.583**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363579.94**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329614.29**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5.2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Grey-brown, moist, medium dense, fine - medium coarse, well sorted, homogenous, no odour, no staining, roots to 0.3m bgs, brown and moist from 0.3m bgs, clay content increasing with depth			0		DS	Y		0	VJ_MW04_0.2	
<b>Sandy Clay</b> With trace gravel, brown with red-brown and grey, moist, soft, low plasticity, homogenous, no odour, no staining, gravel content increasing with depth			1		DS	Y		0	VJ_MW04_1.0	
<b>Gravelly sandy clay</b> Grey and red-brown, moist, medium stiff, low plasticity, homogenous, no odour, no staining								0		
<b>Clayey Sand</b> With gravel, red, brown, with orange-brown and grey, moist, dense, fine-coarse sand with fine gravels, well sorted, rounded, homogenous, no odour, no staining			2					5.7		
<b>Gravelly Clay</b> White, grey mottled red brown, moist, hard, moderately plastic, fine gravel, well sorted, homogenous, no odour, no staining			3					5.3		
<b>Sandy Gravelly Clay</b> Orange brown, moist, dense, moderately plastic, fine sand, fine gravel, rounded to subangular, well sorted, homogenous, no odour, no staining.			4					10.5		
<b>Sandy Gravelly Clay</b> Orange brown, wet, dense, moderately plastic, fine sand, fine gravel, rounded to subangular, well sorted, homogenous, no odour, no staining.			5		US	Y		8.2	VJ_MW04_5.1	
<b>Sandy Gravelly Clay</b> Orange brown, wet, dense, moderately plastic, fine sand, fine gravel, rounded to subangular, well sorted, homogenous, no odour, no staining.			6					5.4		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>2.129</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>9.812</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>10.583</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363579.94</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329614.29</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.2</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					7.8		Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>6.021</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.955</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.654</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363484.4</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329170.1</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Gravelly Sand, brown with orange-brown and black gravel, moist, medium dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0					0		
			1		DS	Y		0	VJ_MW05_1.0	
<b>Sand</b> Grey-brown, moist, dense, fine grained, well sorted, homogenous, colour changed to brown at 1.5 m bgs, no odour, no staining.			2					0.8		
<b>Gravelly Clay</b> With minor sand, light grey mottled orange, brown, moist, firm, fine grained sand, fine medium grained gravel, subrounded, highly weathered (iron oxide), homogenous, no odour, no staining.			3					1.5		
<b>Sandy Clay</b> Light grey, moist, firm, slightly plastic, fine grained sand, homogenous, gravel band dark red, moist, loose, highly weathered, fine medium grained, subrounded at 3.5, 3.7, 3.8, 4.0 and 4.3 m bgs, no odour, no staining.			4					1.5		
<b>Sandy Clay</b> Gravelly, light grey, moist, firm, non-plastic, fine grained sand, fine medium grained gravel, subrounded to subangular, no odour, no staining.			5		US	Y		1.7	VJ_MW05_4.5	
<b>Gravelly Clay</b> Sandy, orange-brown, moist, firm, non-plastic, fine grained sand, fine medium and rounded gravel, slightly weathered, wet at 6.0 m bgs, hard at 6.5 m bgs, no odour, no staining.			6					2.7		
			6					1.7		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>6.021</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.955</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>17.654</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363484.4</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329170.1</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

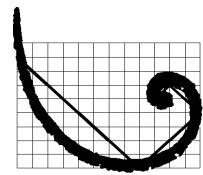
Log By: **GP/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>6.12</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.183</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.863</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363485.67</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329081.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Gravelly, brown, damp, medium dense, fine grained sand, coarse grained gravel, heterogenous, no odour, no staining.			0					0		
<b>Fill</b> Sandy Gravel with clay, black and brown, moist, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0.5		DS	Y		0	VJ_MW06_0.5	
<b>Sandy Clay</b> Gravelly, grey with red-brown and orange brown, stiff, low plasticity, homogenous, red-brown and grey from 1.1 to 1.3 m bgs, no odour, no staining.			1.1					0		
<b>Clay</b> Grey with red-brown and orange-brown mottled, moist, stiff, medium plasticity, homogenous, rootlets throughout, weathered Sandstone band pale yellow, dry, non-cohesive, homogenous from 2.5 to 2.6 m bgs, no odour, no staining.			2.5					0		
<b>Sandstone</b> Weathered, red, dry, non-cohesive, medium coarse grained, homogenous, no odour, no staining.			3		US	Y		0	VJ_MW06_3.0	
			4					0		
			5					0		
<b>Sandy Clay</b> Yellow/brown, low plasticity, soft, homogenous, medium coarse grained, well sorted, wet from 5.8 m bgs, no odour, no staining.			5.8					0		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>6.12</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.183</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.863</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363485.67</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329081.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>4.087</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>17.664</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.387</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363561.72</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329038</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, grey-brown, medium dense, fine grained sand, coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VJ_MW07_0.1	
<b>Fill</b> Sandy Gravel, black, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			1					0		
<b>Sandy Clay</b> Brown with orange-brown and grey, moist, medium stiff, low plasticity, homogenous, tree roots at 1.0 m bgs, no odour, no staining.			2					0		
<b>Gravelly Sand</b> Grey-brown, moist, very dense, fine grained, well sorted, homogenous, no odour, no staining.			3					0		
<b>Sandy Clay</b> White mottled red-orange, moist, stiff, high plasticity, homogenous, coarse grained sand, sub-angular, well sorted, bands of red weathered Sandstone at 3.2 to 3.25 m bgs and 3.35 to 3.4 m bgs, no odour, no staining.			4					0		
			5					0		
<b>Sandy Clay</b> Red/brown, low plasticity, soft, homogenous, medium coarse grained sand, well sorted, wet from 6.0 m bgs.			6							
					US	Y		0	VJ_MW07_3.0	

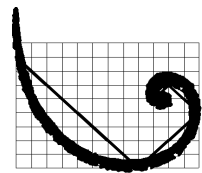
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VJ\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>4.087</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>17.664</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.387</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363561.72</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329038</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
End of Log			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>4.327</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.67</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>19.363</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363752.1</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328906.41</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.2</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Clayey, brown with orange-brown and black gravel, damp, dense, fine grained sand, medium coarse gravel, moderately sorted, homogenous, no odour, no staining.			0					0		
<b>Fill</b> Sandy Gravel, black, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			1		DS	Y		0	VJ_MW08_1.0	
<b>Sand</b> Grey-brown, moist, very dense, fine grained sand, well sorted, homogenous, no odour, no staining.			2					0.8		
<b>Sandy Clay</b> Grey-brown, moist, stiff, medium plasticity, no odour, no staining.			3		US	Y		0.7	VJ_MW08_3.0	
<b>Sandy Clay</b> Light grey with dark red mottling, moist, hard, medium plasticity, no odour, no staining.			4					0.4		
<b>Clayey Sand</b> Light grey with dark red mottling, wet, dense, medium plasticity, no odour, no staining.			5					0.8		
<b>Clayey Sand</b> Gravelly, orange-brown, red-brown, moist, dense, gravel <1cm (irostone and quartz), hole collapsed from 5.8 to 6.0 m bgs, no odour, no staining.			6					0.6		Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/WG**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **5.028**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.782**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **19.474**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363893.85**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329025.15**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Grey-brown, damp, loose, fine grained sand, well sorted, homogenous, no odour, no staining.								0		
<b>Clayey Sand</b> Gravelly, orange-brown and grey, moist, medium dense, fine coarse grained sand, fine grained gravel, well sorted, homogenous, no odour, no staining.					DS	Y		0	VJ_MW09_0.5	
<b>Sandy Clay</b> Grey with red-brown and orange-brown, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			1					0		
<b>Clayey Sand</b> Gravelly, light grey to brown, moist, dense, wet, fine grained (<0.5cm), no odour, no staining.										
			2		US	Y		0.8	VJ_MW09_2.0	
<b>Sandy Clay</b> Orange-brown, moist, medium stiff, medium plasticity, no odour, no staining.			3					0.6		
			4					0.4		
<b>Sandy Clay</b> Orange-brown, moist, very stiff, medium plasticity, no odour, no staining.			5					0.3		
			6					0.2		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

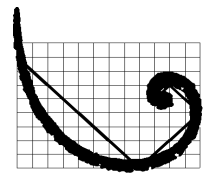
Log By: **GP/WG**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>1.087</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.533</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>15.226</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363984.09</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329263.56</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Gravelly Sand, grey-brown with orange and red-brown gravel, damp, medium dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0					0		
<b>Fill</b> Sandy Gravel, black, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			1		DS	Y		0	VJ_MW10_1.0	
<b>Sand</b> Grey-brown, moist, very dense, fine, well sorted, homogenous, no odour, no staining.										
<b>Sandy Clay</b> Dark grey, moist, medium stiff, medium plasticity, no odour, no staining.										
<b>Clayey Sand</b> Gravelly, light grey with some orange and red mottling, moist, dense, fine grained gravel (<0.5cm) and sub-angular, slight wetland odour, no staining.			2							
					US	Y		0.7	VJ_MW10_2.8	
			3					0.6		
			4					0.8		
<b>Sandy Clay</b> Gravelly, red-brown, wet, soft, medium plasticity, fine grained gravel (<0.5cm), sub-angular, slight wetland odour, no staining.										
			5					1.2		
			6					0.4		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/WG**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **Not Recorded**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **Not Recorded**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **364038**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6329588**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Gravelly Sand</b> Fill, dark brown with orange-brown, moist, dense, fine sand, coarse gravel, poorly sorted, subrounded-subangular gravels, heterogenous, no odour, no staining			0					0		
<b>Sandy Gravel</b> Fill, black, moist, loose, medium coarse sand - coarse gravel, poorly sorted, subangular gravels, homogenous, no odour, no staining			1	<input checked="" type="checkbox"/>	DS	Y		0	VJ_SB01_1.0	
<b>Sandy Clay</b> With gravel. grey with orange-brown and red-brown, soft, moderately plastic, homogenous, no staining, no odour. Becoming moist and lower plasticity at 2.4m bgs			2					0		
			2					1.1		
			3					1.1		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **Not Recorded**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **Not Recorded**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363908**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6329592**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Fill, with trace gravels, brown, moist, loose, fine to medium coarse gravel, well sorted, sub angular, homogenous, no odour, no staining			0					0		
<b>Gravelly Clayey Sand</b> Grey-brown, with orange brown and black gravels, moist, medium dense, fine sand-coarse gravel, poorly sorted, heterogenous, no odour, no staining			1		DS	Y		0	VJ_SB02_1.0	
<b>Sandy Clay</b> With trace gravel, dark brown, moist, soft, low plasticity, homogenous, organic odour, no staining. Becoming grey, with medium plasticity at 2.5m bgs. Becoming saturated at 2.9m bgs, slight H2S odour.			2					0		
			2					2.2		
			3		US	Y		2.6	VJ_SB02_3.0	
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **10.24**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **10.24**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363590.13**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6329563.17**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> With gravel, light brown, dry, dense, fine sand with fine-coarse gravels, well sorted, homogenous, no odour, no staining			0					0		
<b>Sandy Clay</b> With gravel, brown, with red-brown and grey staining, moist, soft, low plasticity, homogenous, no staining, no odour			1					0		
<b>Gravelly Sandy Clay</b> Red-brown to grey, moist, moderately stiff, low plasticity, homogenous, no odour, no staining, tree roots encountered at 1.2m bgs			1.2	■	DS	Y		0	VJ_SB03_1.4	
<b>Clayey Gravelly Sand</b> Brown, moist, loose, fine sand with fine - medium coarse gravel, moderately well sorted, rounded, homogenous, no odour, no staining			2	■	US	Y		1.2	VJ_SB03_2.0	
<b>Gravelly Clay</b> Brown/red, moist, soft, low plasticity, homogenous, no odour, no staining. Grey mottling, dry, medium stiff at 2.5m bgs.			2.5							
			3					0.9		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VJ\_SB04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364019</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329620</b>
Hole Type: <b>Soil Bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Clayey Sand</b> Light brown with orange-brown and black gravels, moist, very dense, fine sand - coarse gravel, poorly sorted, subangular - subrounded, heterogenous, no odour, no staining			0	■	DS	Y		0	VJ_SB04_0.15	
<b>Sandy Clay</b> With gravel, orange-brown with red-brown mottle, moist, soft, moderate plasticity, homogenous, no odour, no staining. Grey with orange-brown and red-brown mottle from 0.9m bgs			1					0		
<b>Sandy Clay</b> Grey with red-brown mottling, moist, hard, low plasticity, homogenous, no odour, no staining			2					1.2		
<b>Gravelly Sandy Clay</b> Orange. dry, stiff, non plastic, homogenous, no odour or staining			3	■	US	Y		1.9	VJ_SB04_3.0	
<b>Sandy Clay</b> Light grey, dry, medium stiff, low plasticity, homogenous, no odour, no staining.										
End of Log										
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **8** Final Water Level (m bgl): **4.11**  
 Drill Finish Date: **13/02/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **12.81**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **12.74**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363525.3**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329492**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand, brown with grey gravel, dry, dense, fine sand, coarse gravel, poorly sorted, heterogenous, no odour, no staining.  <b>Fill</b> Gravelly Sandy Clay, light brown with grey, moist, medium stiff, medium plasticity, homogenous, no odour, no staining.			0		DS	Y		0	VK_MW01_0.5	
<b>Fill</b> Gravelly Sand, black, wet, loose, fine sand, coarse gravel, poorly sorted, heterogenous, no odour, no staining.  <b>Fill</b> Gravelly Sandy Clay, brown with red-brown grey, black and yellow-brown, moist, medium stiff, medium plasticity, heterogenous, no odour, no staining.			1					0		
<b>Clay</b> Natural, grey, moist to dry, hard, plastic, some concrete nodules, no odour, no staining.			3					0		
			4		US	Y		0.2	VK_MW01_3.5	
<b>Silty Sand</b> Dark brown, moist, loose, fine grained sand, increased moisture content with depth, becoming light brown-grey from 4.2 to 4.6 m bgs, no odour, no staining.			4					0		
<b>Clayey Sand</b> Grey with brown mottling, moist, fine medium grained sand, Clay content increased with depth, cementation apparent (becoming harder) from 5.3 m bgs, water strike at 7.0 m bgs, no odour, no staining.			5					0		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

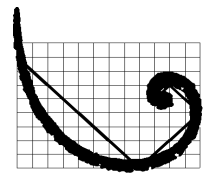
Log By: **GP/HC**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>12/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>4.11</b>
Drill Finish Date: <b>13/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>12.81</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>12.74</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363525.3</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329492</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/HC**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **3.963**  
 Drill Finish Date: **13/02/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **13.474**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **13.321**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363471.43**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329476.45**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Medium condition, no staining.			0		DS	Y		0	VK_MW02_0.1	
<b>Fill</b> Gravelly Clayey Sand, brown, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, sub-angular gravel, homogenous, no odour, no staining.			0		DS	Y		0	VK_MW02_0.2	
<b>Fill</b> Gravelly Sandy Clay, brown with red-brown, grey and yellow-brown, moist, medium stiff, medium plasticity, heterogenous, no odour, no staining.			1		DS	Y		0	VK_MW02_1.0	
<b>Silty Sand</b> Brown, moist, loose, fine grained, well sorted, homogenous, no odour, no staining.								0		
<b>Sandy Clay</b> Red with brown mottling, moist, ironstone nodules throughout, plastic, becoming decreasing sand content from 2.3 m bgs, light grey with brown mottling, monir concretions, no odour, no staining.			2					0		
<b>Clay</b> Grey to light grey, moist to dry, very hard, concrete nodules throughout and some mineral precipitation, angular to fine grained gravel, minor greenish/ grey minerals precipitation at 3.6 m bgs, grading to Sandy Clay from 3.8 m bgs, no odour, no staining.					US	Y		0.5	VK_MW02_2.5	
			3					0		
					US	Y		0.8	VK_MW02_3.6	
<b>Sandy Clay</b> Grey, moist, plastic, becoming softer and increasing sand content and moisture content from 5.0 m bgs, increasing hardness and Clay from 5.5 to 6.0 m bgs.			4					1.3		
			5					1		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/HC**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>12/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>3.92</b>
Drill Finish Date: <b>13/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>13.576</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.441</b>
Driller: <b>Josh Tabernar</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363471.86</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329451.77</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Soft with some cracks.			0		DS	Y		0.2	VK_MW03_0.15	
<b>Fill</b> Gravelly Sand, brown with grey mottling, moist, loose, fine grained sand, fine medium grained, no odour, no staining.			0.5					0.5		
<b>Fill</b> Clay (reworked), brown orange with light grey mottling, moist to dry, some fine grained gravel inclusions, some plasticity, no odour, no staining.			1					1.1		
<b>Silty Sand</b> Natural, dark grey, moist, loose, fine grained, becoming light grey brown from 1.15 m bgs, no odour, no staining.			1.15					0.1		
<b>Sandy Clay</b> Light brown, moist, soft, some plasticity, decreasing sand content with depth and change to brown with red mottling from 1.4 m bgs, concretions (ironstone nodules) and becoming dry and cemented (hard) from 2.0 m bgs, no odour, no staining.			2					0		
					US	Y		0	VK_MW03_2.6	
<b>Clayey Sand</b> Light grey, dry, loose, fine medium grained sand and some fine grained and angular gravel inclusions, becoming orange brown with grey mottling from 2.9 to 3.1 m bgs, increasing moisture from 4.5 m bgs, no odour, no staining.			3					0		
			4					0		
			5					0		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

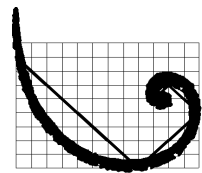
Log By: **HC**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>12/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>4.156</b>
Drill Finish Date: <b>13/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>12.974</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>12.888</b>
Driller: <b>Josh Tabernar</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363517.12</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329439.89</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Silty Sand, light grey to grey, dry, loose, fine grained sand, occasional medium grained gravel inclusions, no odour, no staining.  <b>Fill</b> Silty Sand, grey brown, moist, loose, medium grained sand, fine grained gravel throughout, no odour, no staining.  <b>Fill</b> Clay (reworked), light brown orange with grey and red mottling, moist, traces of gravel inclusions, some cemented gravel (concrete cobbles) at 1.0 m bgs.			0							
			0.1		DS	Y		0.1	VK_MW04_0.2	
			0.1						0.1	
<b>Silty Sand</b> Natural, grey brown, moist, becoming orange brown with depth, no odour, no staining.			1							
			2					0.1		
<b>Sandy Clay</b> Grey with red mottling, moist, becoming dry with depth, hard from 4.3 m bgs, cementation and concrete nodules from 4.6 m bgs, increasing sand content from 4.9 m bgs, no odour, no staining.			3							
			4		US	Y		0.1	VK_MW04_3.0	
<b>Clayey Sand</b> Grey, moist, plastic, becoming wet, no odour, no staining.			4							
			5					0.1		
			6					0.3		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **HC**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>8.3</b>	Final Water Level (m bgl): <b>5.191</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>13.168</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.122</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363760.46</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329408.3</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> With clay, grey-brown, moist, very dense, fine sand - coarse gravel, poorly sorted, heterogenous, no staining, no odour			0		DS	Y		0	VK_MW05_0.1	
<b>Gravelly Sandy Clay</b> Orange-brown with red-brown and grey, moist, medium stiff, moderately plastic, heterogenous, no odour, no staining			1					0		
<b>Sandy Clay</b> Dark brown, moist, soft, moderately plastic, homogenous, no odour, no staining			2		DS	Y		0	VK_MW05_1.5	
<b>Sandy Silty Gravel</b> Light grey mottled orange-brown, yellow-brown and brown.			2					4.1		
<b>Gravelly Sand</b> Orange-brown mottled light brown, moist, fine to coarse sand, fine to medium gravel, angular to subrounded, homogenous. Decrease in gravel and silt content from 5.2m bgs			3					5.7		
			4					8.1		
		5					10.3			
<b>Gravelly Clay</b> Light grey banded orange-brown, moist, moderate plasticity, fine gravel, rounded to subrounded, well		6					10			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>8.3</b>	Final Water Level (m bgl): <b>5.191</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>13.168</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.122</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363760.46</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329408.3</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Silty Gravelly Sand</b> Orange, moist, fine to coarse grained, fine rounded gravel. Saturated from 7.8m			7 8		US	Y		4.5	VK_MW05_6.0	
					US	Y		4.1	VK_MW05_6.8	
End of Log			9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

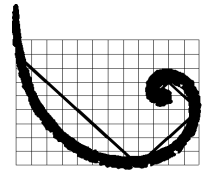
Log By: **GP/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **4.4**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **13.313**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **13.181**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **363807.3**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329387.46**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **6**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Sand with clay, brown with black, grey, orange and red-brown gravel, very dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0	■	DS	Y		0	VK_MW06_0.2	
			0.5	■	DS	Y		0	VK_MW06_0.5	
<b>Fill</b> Gravelly Clayey Sand, brown with black, red-brown and orange gravel, moist, dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			1					0		
<b>Clayey Sand</b> Gravelly Clayey Sand, orange-brown and grey, moist, medium dense, fine grained sand, coarse grained gravel, moderately sorted, sub-rounded to angular gravel, heterogenous, no odour, no staining.			2	■	US	Y		0.4	VK_MW06_2.0	
<b>Clayey Sand</b> Gravelly, red-brown, moist, dense, sub-rounded gravel (mainly ironstone and quartz), no odour, no staining.			3							
			4					1.2		
			5						0.8	
			6					1.3		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/WG**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VK\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>4.4</b>
Drill Finish Date: <b>17/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>13.313</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.181</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363807.3</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329387.46</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Sandy Clay</b> Gravelly, red-brown, wet, soft, medium plasticity, fine grained gravel (<0.3cm), no odour, no staining.			7					0.3		
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/WG**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **5.4** Final Water Level (m bgl): **4.350**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **13.556**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **14.279**  
 Driller: **Josh Tabernar** Casing Diam. (mm): **50** Easting (MGA): **363770.13**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329343.63**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Dark grey, moist, loose, fine sands with fine-coarse gravel, well sorted homogenous, coal fines and gravels throughout, no staining, no odour, timber sleeper at 0.35m bgs, coral at 0.5m bgs.			0		DS	Y		0	VK_MW07_0.1	
<b>Clayey Gravelly Sand</b> Grey-brown, moist, medium dense, fine sand - coarse gravel, poorly sorted, heterogenous, no odour, no staining			1		DS	Y		0	VK_MW07_1.0	
<b>Sandy Clay</b> Light brown with red-brown mottle, moist, medium stiff, low plasticity, homogenous, no odour, no staining, grey with orange-brown and red-brown staining from 1.4m			2		US	Y		0	VK_MW07_1.8	
<b>Sandstone</b> Weathered, pale grey with orange mottle, dry, non-cohesive, moderately coarse, well sorted, homogenous, no odour, no staining.			2					0.1		
			3					0		
			4					0		
			5					0		
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/DB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014** Total Depth (m): **5.1** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/02/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **Not Recorded**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **Not Recorded**  
 Driller: **Matt Moroney** Casing Diam. (mm): **NA** Easting (MGA): **363508**  
 Drill Method: **CC/NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6329482**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no staining.			0		DS	Y		0	VK_SB01_0.25	
<b>Fill</b> Gravelly Sandy Clay, brown, soft, medium stiff, medium plasticity, homogenous, no odour, no staining.			0.5		DS	Y		0	VK_SB01_0.5	
<b>Fill</b> Gravelly Sand, black, wet, loose, fine grained sand, coarse gravel, poorly sorted, homogenous, no odour, no staining.			1.5					0		
<b>Fill</b> Gravelly Sandy Clay, brown with red-brown, grey and black, moist, medium stiff, medium plasticity, heterogenous (reworked clay filled), no odour, no staining.			2.5					0.1		
<b>Clayey Sand</b> Natural, dark grey brown, moist, firm, minor plasticity, fine grained sand, some degraded root inclusions, organic at 3.2 m bgs, becoming grey from 3.3 m bgs, no odour, no staining.			3.5					0.5		
			3.5		US	Y		0.9	VK_SB01_3.5	
<b>Sandy Clay</b> Grey with orange brown mottling, moist, plastic, becoming light grey from 4.3 m bgs, no odour, no staining.			4.5					0		
			5.0					0.5		
End of Log			6.0							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VK\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **3.9** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **27/04/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **12.236**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **12.236**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363801.8**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6329412.66**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Fill, grey-brown, dry, medium dense, fine sand to medium coarse gravel, moderately well sorted, homogenous			0	■	DS	Y		0	VK_SB02_0.1	
<b>Clayey Gravelly Sand</b> Fill, brown with black and red-brown gravels, moist, medium dense, fine sand to coarse gravel, poorly sorted, heterogenous, no odour, no staining			1	■	DS	Y		0	VK_SB02_1.0	
<b>Gravelly Sandy Clay</b> Orange-brown with red-brown and grey, moist, medium stiff, low plasticity, homogenous			2					0		
<b>Clayey Gravelly Sand</b> Light brown and grey with red-brown gravels, moist, dense, fine sand to coarse gravel, moderately well sorted, sub rounded gravels, homogenous, no odour, no staining, increased clay content between 3.2 and 3.7m bgs.			3					0		
			4	■	US	Y			VK_SB02_3.9	
End of Log			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VL\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.608**  
 Drill Finish Date: **24/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **10.013**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **10.625**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363738.43**  
 Drill Method: **NDD/PT** Surface Completion: **Monument** Northing (MGA): **6330060.65**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4.2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly sand with clay, brown, very dense, fine sand - coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VL_MW01_0.1	
<b>Sandy Clay</b> Grey with red brown, moist, medium stiff, medium plasticity, homogenous, gravel inclusions, becomes hard at 2m bgs, dark red and purple mottling with some weathered gravel inclusions, moist and non-plastic at 3.8m bgs, odour, no staining.			1		DS	Y		0	VL_MW01_1.0	
					DS	Y		0	VL_MW01_1.5	
			3		US	Y		0.2	VL_MW01_3.0	
<b>Sandy Clay</b> Light grey, very moist, medium stiff, low plasticity, heterogenous, minor gravel inclusions, very soft at 5.5m bgs, no odour, no staining.			4					0.1		
			5					0		
<b>Silty Sand</b> Clayey, light grey, moist, dense, coarsed grained, moderate sorting, sub-angular alluvial and marine gravel and pebbles, no odour, no staining, inclusions of organic matter (marine shells).  End of Log			6					0		
			7							

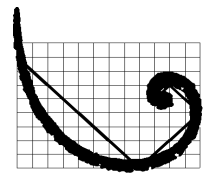
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VL\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **2.471**  
 Drill Finish Date: **25/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **7.679**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **8.288**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363796.55**  
 Drill Method: **NDD/PT/AH** Surface Completion: **Monument** Northing (MGA): **6329971.61**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> With gravel, brown, damp, loose, fine with fine-medium coarse grained gravel, well sorted, homogenous, no odour, no staining.			0		DS	Y		0	VL_MW02_0.1	
<b>Sandy Clay</b> With gravel, brown with red-brown gravels, moist, soft, moderate plasticity, homogenous, no odour, no staining.			1		DS	Y		0	VL_MW02_1.0	
<b>Sandy Clay</b> Brown grey, moist, soft, medium plasticity, homogenous, trace gravels from 1.4m, no odour, no staining.			2		US	Y		0.1	VL_MW02_2.0	
<b>Sandy Clay</b> Gravelly, orange brown with grey, moist, soft, medium plasticity, homogenous, saturated from 1.6 - 1.9m bgs, no odour, no staining.			3					0		
<b>Clay</b> Grey with minor brown mottling, damp, stiff, low plasticity, homogenous, at 3m bgs very tight, hard, dry, at 5.5m bgs brown, saturated, no odour, no staining.			4					0		
			5					0		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

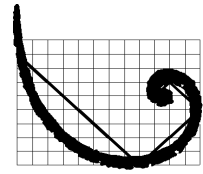
Log By: **GP/CM**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VL\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>20/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>2.471</b>
Drill Finish Date: <b>25/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>7.679</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>8.288</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363796.55</b>
Drill Method: <b>NDD/PT/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329971.61</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VL\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **5.787**  
 Drill Finish Date: **25/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **13.097**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **13.675**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363635.35**  
 Drill Method: **NDD/PT** Surface Completion: **Monument** Northing (MGA): **6329993.06**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Dark brown, damp, medium dense, fine, well sorted, homogenous, no odour, no staining.			0		DS	Y		0	VL_MW03_0.2	
<b>Sandy Clay</b> With trace gravel, grey brown with minor orange brown, moist, soft, medium plasticity, homogenous, no odour, no staining.			0		DS	Y		0	VL_MW03_0.5	
<b>Sandy Clay</b> Gravelly, grey with orange brown and red brown, moist, medium stiff, medium plasticity, homogenous, gravel and sand content increasing with depth, red brown increasing, orange brown decreasing with depth, no odour, no staining.			1					0		
<b>Clayey Sand</b> Gravelly, grey with red brown and some orange brown, damp, dense, fine-coarse sand with fine-medium coarse gravels, well sorted, homogenous, grey at 2 - 2.9m bgs, no odour, no staining.			2		US	Y		0.1	VL_MW03_2.0	
			3					0.1		
<b>Sandy Clay</b> Grey with orange brown mottling, moist, medium stiff, low plasticity, alluvial gravel inclusions (<1cm), light brown mottling at 5.6m bgs.			4					0.1		
			5					0		
			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VL\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>363791.31</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329957.96</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Clayey Sand, brown, moist, medium dense, fine grained sand, medium coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VL_SB01_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VM\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>6</b>	Final Water Level (m bgl): <b>2.398</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.045</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.934</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364008.89</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329967.72</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly Silty Sand, damp, loose, fine grained sand, coarse grained gravel, moderately sorted, angular to sub-rounded gravel, homogenous, no odour, no staining.			0	■	DS	Y		0	VM_MW01_0.15	
<b>Fill</b> Gravelly Sandy Clay, brown, moist, medium stiff, medium plasticity, heterogenous.			0	■	DS	Y		0	VM_MW01_0.5	
<b>Clayey Sand</b> With traces of gravel, light grey, damp, medium dense, fine medium grained sand, well sorted, homogenous, some brown from 0.8 m bgs, no odour, no staining.			1					0		
<b>Sandy Clay</b> Grey-brown, moist, soft, high plasticity, homogenous, no odour, no staining.			1	■	DS	Y		0	VM_MW01_1.5	
<b>Sandy Clay</b> With traces of gravel, grey with red-brown and orange-brown, moist, medium stiff, medium plasticity, heterogenous, red-brown weathered gravel increasing with depth, no odour, no staining.			2	■	US	Y		0.3	VM_MW01_2.0	
<b>Clay</b> Orange/brown, damp, medium stiff, low plasticity, homogenous, moist and soft at 2.7 and 3.2 m bgs, no odour, no staining.			3					0.4		
<b>Clay</b> Orange/brown, damp, stiff, non-plastic, heterogenous, gravel inclusions (<1cm), grey mottling at 3.9 m bgs, hard and dry at 4.5 m bgs, no odour, no staining.			4					0.5		
			5					0.4		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VM\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>363985</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329939</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Gravelly Sand, brown, moist, medium dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VM_MW02_0.1	
End of Log			1							Location is a 2m wide strip between a building and a canal. area contained multiple services, shallow sample only
			2							
			3							
			4							
			5							
			6							

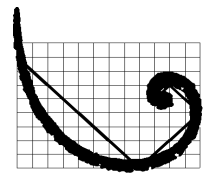
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VM\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.19**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.971**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.836**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **363965.91**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329927.57**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy Gravel, grey, damp, dense, coarse gravel with some fine coarse sand, well sorted, homogenous, no odour, no staining.			0		DS	Y		0	VM_MW03_0.2	
<b>Asphalt</b>										
<b>Fill</b> Gravelly Sandy Clay, brown with black and red-brown gravel, moist, medium stiff, medium plasticity, heterogenous, no odour, no staining.			1					0		
<b>Fill</b> Sandy Clay, grey-brown, moist, stiff, high plasticity, homogenous, no odour, no staining.					DS	Y		0	VM_MW03_1.5	
<b>Fill</b> Gravelly Sandy Clay, brown with red-brown, grey and orange brown, moist, medium stiff, medium plasticity, heterogenous, no odour, no staining.			2					0.2		
<b>Fill</b> Gravelly Clayey Sand, grey-brown, moist, medium dense, fine grained sand, medium coarse grained gravel, moderately sorted, homogenous, no odour, no staining.			3					0.2		
<b>Sandy Clay</b> Gravelly, light brown, damp, medium stiff, low plasticity, no odour, no staining.										
<b>Gravelly Sand</b> Grey, damp, medium dense, coarse grained, moderately sorted, sub-angular gravel inclusions (<1cm), no odour, no staining.			4					0.2		
<b>Clay</b> Light brown with orange mottling, moist, soft, medium plasticity, heterogenous, dark brown at 5.2 m bgs, no odour, no staining.			5					0.2		
<b>Sandy Gravel</b> Brown/grey, saturated, loose, coarse grained, poorly sorted, sub-rounded gravel inclusions (<2cm), no odour, no staining. Collapsed from 5.0 to 6.0 mbgs.			6		US	Y		0.1	VM_MW03_6.0	
End of Log			7							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

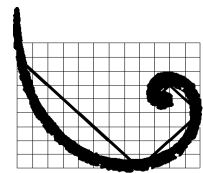
Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VM\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **2.028**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.973**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.794**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363952.92**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329958.12**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravelly sand, light grey, dry, very dense, fine sand - coarse gravel, moderately sorted, heterogenous, no odour, no staining.  <b>Sandy Clay</b> Gravelly sandy clay, red brown with grey, moist, medium stiff, medium plasticity, homogenous, grey with red brown at 0.4-0.7m, grey with brown from 0.7m, no odour, no staining.			0							
			0.3	DS	Y		0	VM_MW04_0.3		
<b>Sandy Clay</b> Dark brown, moist, soft, medium plasticity, homogenous, at 2m bgs - saturated, slight hydrocarbon / organic odour, grey / brown at 3m bgs, no odour, no staining.			1							
			1.0	DS	Y		0	VM_MW04_1.0		
			2					0.2		
			3					0.5		
			3		US	Y			VM_MW04_3.0	
			4					0.1		
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VM\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>363982</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329982</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Gravelly Sand, brown, moist, medium dense, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, no odour, no staining.			0		DS	Y		0	VM_MW05_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VM\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.02</b>	Final Water Level (m bgl):
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>0</b>
Drill Co: <b>ERM</b>	Casing Type:	Elevation (Case): <b>0</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm):	Easting (MGA): <b>363948</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329954</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>0</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Gravelly Sand, brown, moist, loose, fine grained sand, coarse grained gravel, poorly sorted, heterogenous, concrete at 0.02 m bgs, no odour, no staining.			0			Y		0	VM_SB01_0.01	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>3.368</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>26.582</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>27.384</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>360094.27</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330566.25</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sandy Clay</b> Light brown, slight moist, medium stiff, low plasticity, medium grained sand, moderately sorted, no odour, no staining.  <b>Clay</b> Orange with red mottling, moist, medium stiff, medium plasticity, some small and rounded gravel (1-2mm) throughout, no odour, no staining.			0		DS	Y		0	VN_MW01_0.2		
			0					0			
			1						0		
<b>Sandy Clay</b> Grey, orange-brown with red inclusions, friable, non-plastic, well sorted, red gravel bands at 2.8 and 2.9 m bgs, rounded gravel becoming larger diameter (5-10mm), wet, Sandy Clay at 3.9 to 4.1 m bgs, no odour, no staining.			2					0.6			
			3					0.1			
			4		US	Y		0.1	VN_MW01_3.9		
			5								
			6								

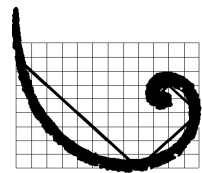
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VN\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>3.368</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>26.582</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>27.384</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>360094.27</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330566.25</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **1.427**  
 Drill Finish Date: **12/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **20.664**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **21.382**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **360108.51**  
 Drill Method: **HA/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6330692.43**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Brown, dry, medium to well sorted, sub rounded, no staining, no odour  <b>Sandy Clay</b> Orange, red and white mottling, moist, sand poorly sorted, angular to sub angular, no staining, no odour, occasional rounded pebbles. Brown with white mottling and hard from 1.0m bgs. Wet from 2.2 to 2.3m bgs.			0					0		
			0.5	■	DS	Y		0	VN_MW02_0.5	
<b>Siltstone</b> Grey with red oxidised friable inclusions, moist, hard, non plastic. dense and consolidated, no odour, no staining,			1					0		
			3.7	■	US	Y		0	VN_MW02_3.7	
End of Log			4					0		
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

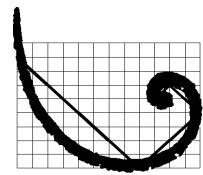
Log By: **DB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>14.05</b>	Final Water Level (m bgl): <b>8.162</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>30.926</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>31.604</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359432.45</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330787.03</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Yellow-brown, dry, medium coarse grained, gravel angular to sub-angular, <20mm, no odour, no staining.  <b>Sandy Gravel</b> Pale yellow sandstone gravel, poorly sorted, angular to sub-angular, 10-150mm, sand is yellow/brown, medium coarse grained, no odour, no staining.  <b>Sandstone</b> Pale yellow, dry, hard, well sorted, heterogeneous, grading to grey from 0.6 m bgs, no odour, no staining.			0					0		
									0	VN_MW03_0.4
			1		DS	Y		0		
					DS	Y		0	VN_MW03_0.8	
			2					0		
<b>Sandy Clay</b> Gravelly, brown, moist, non-plastic, well sorted gravel (2-12mm), no odour, no staining.			3					0		
<b>Sandy Clay</b> Weathered Sandstone, yellow, dry, homogenous, well sorted, grading to grey from 5.5 m bgs, increasing rounded pebbles (1-3cm conglomerate) from 6.2 m bgs, no odour, no staining.			4					0		
			5					0		
			6							

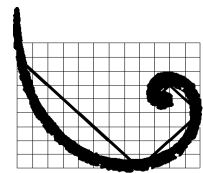
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>14.05</b>	Final Water Level (m bgl): <b>8.162</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>30.926</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>31.604</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359432.45</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330787.03</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
<b>Conglomerate</b> Dry, sub-rounded gravel (3-10mm) chert and ironstone, in silty sand matrix, slightly weathered, no odour, no staining.			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB/WG**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>14.05</b>	Final Water Level (m bgl): <b>8.162</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>30.926</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>31.604</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359432.45</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330787.03</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Conglomerate</b> Moist, sub-rounded gravel, chert, shale and ironstone (3-10mm), silty sand matrix, moderately weathered, no odour, no staining.			13 14							
End of Log			15 16 17 18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB/WG**

Checked By: **KD**

Page **3 of 3**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **7/03/2014** Total Depth (m): **8.7** Final Water Level (m bgl): **2.852**  
 Drill Finish Date: **10/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.96**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **19.518**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **359717.05**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Standpipe** Northing (MGA): **6331378.16**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Brown, dry, loose, fine grained sand, well sorted, gravel (<40% to <70%) and angular from 0.25 to 0.4 m bgs, dark grey at 0.4 m bgs, slight organic odour, medium grey/green olive at 0.7 m bgs, moist from 1.4 m bgs, no odour, no staining.			0					0.1		
			0.9	■	DS	Y			0.9	VN_MW05_0.5
<b>Sandy Clay</b> Grey with orange mottles, moist, soft, high plasticity, extremely soft between 3.1 to 3.2 m bgs, no odour, no staining.			1					0.1		
			2					0		
<b>Sandy Clay</b> Gravelly, grey, moist, hard, high plasticity, some orange staining/oxidisation.			3					0.1		
			4					0		
<b>Sandy Clay</b> Gravelly, grey, moist, hard, high plasticity, some orange staining/oxidisation.			5					0		
			6	■	US	Y			0	VN_MW05_6.0

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>8.7</b>	Final Water Level (m bgl): <b>2.852</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.96</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>19.518</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359717.05</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331378.16</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
									VN_MW05_0.0	
<b>Sandy Clay</b> Yellow-brown, saturated, soft, non-plastic, hole collapsed from 7.5 to 8.7 m bgs, no odour, no staining.			7					0		
			8							
End of Log			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>11.5</b>	Final Water Level (m bgl): <b>6.674</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>44.2</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>44.846</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359141.91</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331464.85</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>10.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sandstone</b> Weathered, orange, dry, non-plastic, well sorted, coarse, friable, grading between yellow and orange to grey at 1.0 to 2.3 m bgs, no odour, staining.			0.9		DS	Y		0.9	VN_MW06_0.2		
			3.2					3.2			
			3.5						3.5		
			0.8						0.8		
			2.0		US	Y		0.2	VN_MW06_2.3		
			3.0					3.0			
			4.0						4.0		
			0.1						0.1		
<b>Sandstone</b> Grey-brown, grading to grey from 6.0 m bgs, dry, hard, non-plastic, no odour, no staining.			5.0					0			
			6.0					6.0			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VN\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>11.5</b>	Final Water Level (m bgl): <b>6.674</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>44.2</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>44.846</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359141.91</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331464.85</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>10.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					0		
			9					0		
			10					0		
			11							
End of Log			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

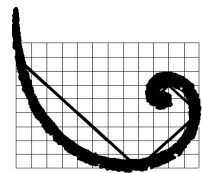
Log By: **SB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VN\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>11.5</b>	Final Water Level (m bgl): <b>6.938</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>45.609</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>46.261</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359171.14</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331495.87</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sandstone</b> Weathered, yellow-brown, moist, medium dense, non-plastic, friable, homogenous, grading to grey with orange-red mottling from 0.8 m bgs, no odour			0					1.6			
			0.5		DS	Y		0.5	VN_MW07_0.5		
			1						1.8		
			1.8		US	Y		0	0.7	VN_MW07_1.8	
<b>Sandstone</b> Grey, dry, hard, non-plastic, homogenous, wet from 9.0 m bgs, no odour, no staining.			2					0			
			2					0.1			
			3						0		
			4						0.1		
			5					0			
			6					0			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>11.5</b>	Final Water Level (m bgl): <b>6.938</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>45.609</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>46.261</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359171.14</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331495.87</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					0		
			9					0.1		
			10							
			11							
End of Log			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

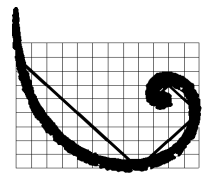
Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>2.65</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>25.569</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>26.309</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359292.72</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331251.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

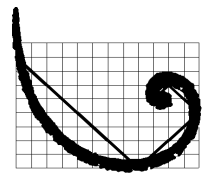
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Brown, moist, coarse grained sand, non-plastic, unconsolidated, small angular gravel, no odour, no staining.			0		DS	Y		1.8	VN_MW08_0.2	
<b>Sandy Clay</b> Yellow-brown, moist, non-plastic, unconsolidated, homogenous with some angular oxidised red Sandstone gravel, no odour, no staining.			1					3.4		
<b>Sandy Clay</b> Brown, moist, coarse grained sand, non-plastic, unconsolidated, small angular gravel, no odour, no staining.			1					3.1		
<b>Sand</b> Grey, dry, consolidated, non-plastic, medium grained, well sorted, no odour, no staining.			2					0		
<b>Sandy Clay</b> Orange with grey inclusions, moist, soft, medium plasticity, grading to grey from 3.0 m bgs, no odour, no staining.			2					0		
			3					0		
			4					0		
			5		US	Y		0	VN_MW08_5.0	
			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>2.65</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>25.569</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>26.309</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359292.72</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331251.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Sandy Clay</b> Grey, wet/saturated, soft, non-plastic, coarse grained sand, no odour, no staining.			7					0		
<b>Sandy Clay</b> Orange, saturated, soft, non-plastic, coarse grained sand throughout, hole collapsed from 8.0 to 9.0 m bgs, no odour, no staining.			8					0		
			9					0		
End of Log			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>4.501</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.548</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>21.457</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359335.29</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6331210.68</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.2</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Medium brown with orange mottling, dry, very loose, clay content (<10%), rootlets present, well sorted, no odour, no staining.  <b>Sandy Clay</b> Light grey/white with orange mottling, moist, very soft, medium plasticity, grading to grey with rounded pebbles from 2.3 m bgs, no odour, no staining.			0					0		
			0.5					0	VN_MW09_0.5	
			1.2					0		
			1.6					0.4		
<b>Sandy Clay</b> Gravelly, orange-brown, wet, water-bearing layer, some rounded gravel throughout, some angular Sandstone gravel (oxidised red), low plasticity, heterogeneous, no odour, no staining.  <b>Sandy Clay</b> Gravelly, yellow-brown, saturated, small angular gravel throughout, low plasticity, no odour, no staining.			1.6		US	Y		1.6	VN_MW09_4.2	
			5.0					0.2		
			6.0					0.4		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>4.501</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.548</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>21.457</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359335.29</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6331210.68</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.2</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0.5		
<b>Sandstone</b> Weathered, dry, hard, non-plastic, homogenous, hole collapsed from 7.0 to 7.5 m bgs, no odour, no staining.										
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>13.5</b>	Final Water Level (m bgl): <b>6.224</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>33.241</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>33.837</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>358988.46</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330365.22</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Orange-brown, moist, well sorted, homogenous, non-plastic, high sand content, no odour, no staining.			0		DS	Y		0	VN_MW10_0.2	
<b>Sandy Clay</b> Orange with red mottles, moist, high plasticity, cohesive, homogenous, colour grading to grey from 0.9 m bgs, no odour, no staining.			0					0		
<b>Sandy Clay</b> Grey with red mottles, moist, stiff, no odour, no staining.			1					0		
<b>Clayey Sand</b> Yellow-grey with red inclusions, dry, friable, homogenous, no odour, no staining.			2					0		
			3			US	Y		0	VN_MW10_3.0
<b>Sandstone</b> Yellow and grey, dry, hard.		4								
		5								
		6								

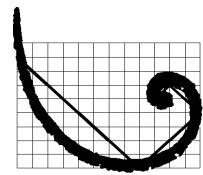
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>13.5</b>	Final Water Level (m bgl): <b>6.224</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>33.241</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>33.837</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>358988.46</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330365.22</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
<b>Fill</b> Tree root, Red-brown, wood fibre, dry.			8							
			9							
<b>Sandstone</b> Silty with minor gravel, light grey, moist, no odour, no staining.			10							
			11							
<b>Conglomerate</b> Sub-rounded gravel (chert, shale, quartz and ironstone), 3-10cm, silty sand matrix, red-brown, moist, no odour, no staining.			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

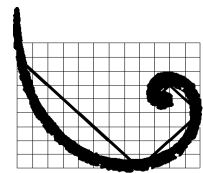
Log By: **SB/WG**

Checked By: **KD**

Page 2 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>13.5</b>	Final Water Level (m bgl): <b>6.224</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>33.241</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>33.837</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>358988.46</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330365.22</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Mudstone</b> Grey, moist, no odour, no staining.			13							
End of Log			14 15 16 17 18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/WG**

Checked By: **KD**

Page **3** of **3**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_MW12**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>5.8</b>	Final Water Level (m bgl): <b>2.573</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.232</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.904</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359717.21</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Standpipe</b>	Northing (MGA): <b>6331245.94</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Orange with light brown mottling, very moist, very soft, high plasticity, fine coarse grained sand (<30%), poorly sorted, colour change to red with light brown mottling at 0.3 m bgs, , saturated from 0.8 m, no odour, no staining.			0		DS	Y		0	VN_MW12_0.2	
			0.1					0.1		
			1					0.1		
<b>Sandstone</b> Weathered, grey with orange gravel, moist, low plasticity, gravel fragments of bedrock, no odour, no staining.			2		US	Y		0.2	VN_MW12_1.6	
			2					0.2		
<b>Sandy Clay</b> Red-brown, saturated, soft, some fine angular gravel throughout, non-plastic, no odour, no staining.			3					0.2		
			3					0.2		
<b>Sandy Clay</b> Grey with red mottling, moist, low plasticity, no odour, no staining.			4					0		
			4					0		
<b>Sandy Clay</b> Red-brown, moist, soft, medium plasticity, water strike at 5.8 m bgs (saturated), hard layer, bedrock, hole collapsed from 5.0 to 5.8 m bgs, no odour, no staining.			5					0		
			5					0		
			5.8					0		
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>23.898</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>23.898</b>
Driller: <b>Matt</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>360131.7</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6330653.94</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>0.78</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Brown, dry, medium coarse grained, moderately to well sorted, sub-rounded, no odour, no staining.			0					0		
<b>Sandy Clay</b> Orange with red and white mottling, medium grained, poorly sorted, wet and coarse grained at 0.78 m bgs, grey and wet from 2.1 to 2.3 m bgs, with fine rounded gravel, well sorted and homogenous from 2.6 to 3.0 m bgs, no odour, no staining.			0.78	■	DS	Y		0	VN_SB01_0.5	
			1					0		
			2					0		
			2.3	■	US	Y		1	VN_SB01_2.3	
			3							
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

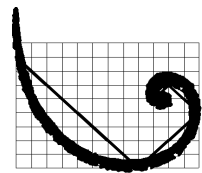
Log By: **DB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>359439.72</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6331092.84</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks		
Ground Surface			0									
<b>Gravelly Sand</b> Light brown, dry, very loose, fine grained sand, medium grained gravel (<10%), well sorted, no odour, no staining.  <b>Sandy Clay</b> Orange mottled red, slightly moist, medium plastic, sand grains poorly sorted, sub-rounded to angular, <del>Sandy Clay</del> <b>Sandy Clay</b> Gravelly, orange with red oxidised lensing, moist, very soft, high plasticity, fine grained sand (<30%), medium grained gravel (<5%), dry and friable from 1.3 m bgs with light grey/ white mottling, no odour, no staining.			0									
									0	VN_SB02_0.2		
										0		
						1				0.1		
								0				
			2					0.1				
								0				
			3		US	Y		0	VN_SB02_3.0			
End of Log												
			4									
			5									
			6									

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **1.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **27.029**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **27.029**  
 Driller: **Matt Moroney** Casing Diam. (mm): **NA** Easting (MGA): **360207.08**  
 Drill Method: **HA** Surface Completion: **Backfilled** Northing (MGA): **6330616.04**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Brown, dry, medium to well sorted, sand grains medium coarse, well sorted, sub rounded, no staining, no odour.  <b>Sandy Clay</b> Orange, mottled red, medium plasticity, slightly moist, sand grains poorly sorted, medium to coarse grains, sub-rounded to angular, no odour, no staining	  		0					0		
			0.5			Y		0	VN_SB03_0.5	
			1.2			Y		0	VN_SB03_1.2	
End of Log			2							Refusal on Sandstone
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_SB04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>359504.88</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6331018.47</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Medium brown, moist, loose, fine grained sand, medium grained gravel (<5%), well sorted, rootlets present, some orange clay clumps (~20mm), increased clay content and no gravel content from 0.25 m bgs no odour, no staining.			0					0		
								0	VN_SB04_0.5	
<b>Sandy Clay</b> Orange with some light brown mottling, moist, very soft, high plasticity, fine grained sand and well sorted, no odour, no staining.			1					0.6		
								0		
<b>Sandy Clay</b> Red-brown with grey mottling, dry, friable, low plasticity, some oxidised gravel throughout (Sandstone), no odour, no staining.			2					0		
								0		
End of Log			3					0		
								0	VN_SB04_3.0	Target depth achieved
End of Log			4							
			5							
			6							

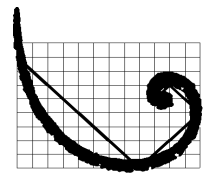
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VN\_SB05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>0.5</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>Not Recorded</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>Not Recorded</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>359346.32</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6330944.99</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Weathered Sandstone, yellow-brown, dry, friable, unconsolidated, non-plastic, well sorted, no odour, no staining.					DS	Y		1	VN_SB05_0.2	
					DS	Y		0.8	VN_SB05_0.5	
<b>Sandstone</b> Weathered, Yellow, dry, consolidated, non-plastic, well sorted, no odour, no staining.			1							Refusal on Sandstone bedrock.
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **4/03/2014** Total Depth (m): **4** Final Water Level (m bgl): **0.956**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **1.568**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.288**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **362861.99**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329214.67**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Light brown/orange, moist, very soft, medium plasticity, fine grained sand (<40%), rootlets, no odour, no staining.			0		DS	Y		0	VO_MW01_0.2	
			0.5		DS	Y		0	VO_MW01_0.5	
<b>Sandy Clay</b> Light brown/orange with red mottling, dry and low plasticity, dark brown, moist, soft, high plasticity from 0.65 m bgs, no odour no staining.			1					0		
<b>Clay</b> Light grey, orange mottling, very soft, low medium plasticity, saturated from 1.3 m bgs, no odour, no staining.			2					0		
<b>Clay</b> Grey/dark brown, saturated, very soft, high plasticity, homogenous, dark brown, slight H2S odour at 3.2 m bgs.			2		US	Y		9.3	VO_MW01_2.0	
			3					8.7		
									2.2	
			4					2.5		Target depth achieved
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **3.911**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **6.195**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **7.034**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **362656.41**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329015.92**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4.2**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Dark brown, moist, loose, low plasticity, grass roots throughout, no odour, no staining.			0					0		
<b>Sandy Clay</b> Orange with red and white mottling, moist, loose, medium coarse grained, low plasticity, some weathered sandstone gravel (<10mm), no odour, no staining.			1		DS	Y		0	VO_MW02_0.5	
<b>Gravelly Sand</b> Light brown, moist, loose, fine grained, non-plastic, well sorted gravel (5-10mm), sub-rounded.			1					0		
<b>Sandy Clay</b> Gravelly, light brown with grey mottling, dry, medium stiff, low plasticity, heterogeneous, no odour, no staining.			2		US	Y		0.6	VO_MW02_2.0	
<b>Sand</b> Pale brown, dry, loose, medium coarse grained, well sorted, sub-rounded, no odour, no staining.			3					0.7		
<b>Gravel</b> Black, dry, poorly sorted, very angular, no odour, no staining.			3							
<b>Sand</b> Pale brown, dry, loose, medium coarse grained, well sorted, sub-rounded, no odour, no staining.			4					0.8		
<b>Sandy Clay</b> Gravelly, light brown, damp, soft, low plasticity, homogenous, no odour, no staining.			5					0.6		
<b>Silty Clay</b> Black/dark brown, moist, very soft, medium plasticity, homogenous, organic matter present, organic odour, no evidence of impact (odour or staining), colour			6					0.8		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>3.911</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>6.195</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>7.034</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362656.41</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329015.92</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.2</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **7.5** Final Water Level (m bgl): **3.826**  
 Drill Finish Date: **19/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **5.995**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **6.699**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **362520.37**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6328994.34**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **6.3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Brown, dry, loose, non-plastic, grass roots throughout, no odour, no staining.			0					0		
<b>Sandy Clay</b> With some gravel (<2mm), range/brown with red mottles, moist, loose, medium plasticity, sub-rounded.			0.5		DS	Y		0	VO_MW03_0.5	
			1					0		
			1.5					0.2		
<b>Sandy Clay</b> Grey with mottled red and yellow staining, moist, medium stiff, medium plasticity, no odour.			2					0.2		
			2.5					0.4		
<b>Sand</b> Yellow, moist, loose, medium grained, well sorted, no odour, no staining.			3					0.5		
<b>Sandy Gravel</b> Dark grey, moist, loose, poorly sorted, no odour, no staining.			3.5							
<b>Sand</b> Yellow, moist, loose, medium grained, well sorted, no odour, no staining.			4					0.6		
<b>Sandy Clay</b> With gravel, grey with red and yellow staining, moist, soft.			4.5							
			5					0.7		
<b>Clay</b> Black, soft, moist, high plasticity, decay odour, becoming very soft and moist at 5.5 m bgs, no staining.			5.5							
<b>Clay</b> Dark grey with minor orange staining, very soft, very			6					0.5		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/JE**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VO\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>3.826</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>5.995</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>6.699</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362520.37</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328994.34</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6.3</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Gravelly Clay</b> Sandy, grey, wet, very soft, H2S odour, no staining. Collapsed from 7.0 to 7.5 m bgs.			7		US	Y		5.9	VO_MW03_7.0	
										Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/JE**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **27/02/2014** Total Depth (m): **8** Final Water Level (m bgl): **0.843**  
 Drill Finish Date: **4/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **2.545**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.187**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **362393.14**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6329044.77**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **6**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Fine grain sand, medium grained gravel (<20%), tan/light brown, dry, very loose, poorly sorted, no odour, no staining.			0		DS	Y		0	VO_MW04_0.2	
			0.2		DS	Y		0	VO_MW04_0.5	
<b>Clayey Sand</b> Fine grain sand, medium grained gravel (<20%), reddish brown, dry, loose, poorly sorted, no odour, no staining.			1					0		
<b>Sandy Clay</b> Medium grain, gravelly sand (<30%), orange/brown clay, dry, soft, medium plasticity, no odour, no staining.			2					0		
<b>Clay</b> Dark grey/black, moist, very soft, high plasticity, organic matter (roots), red mottling, saturated at 2.5 m bgs, <1cm gravel inclusions at 4.0 m bgs, becoming brown at 4.8 m bgs, no odour, no staining.			2		US	Y		0	VO_MW04_2.0	
			3					0		
			4					0		
			5					0		
<b>Sandy Clay</b> Grey, damp, soft, non-plastic, heterogeneous, gravel inclusions (sub-angular) (<1cm), brown/orange mottling and moist at 6.0 m bgs, brown and saturated at 6.1 m bgs, no odour, no staining.			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

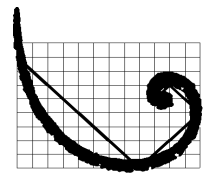
Log By: **RP/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>0.843</b>
Drill Finish Date: <b>4/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>2.545</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.187</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362393.14</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329044.77</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>6</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

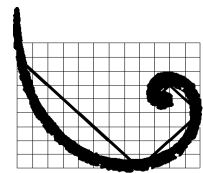
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>3.533</b>
Drill Finish Date: <b>4/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.172</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>10.724</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362177.5</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328855.57</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sand</b> Fine grain with <5% coarse grain, grey, dry, very loose, well sorted, rootlets present, no odour, no staining.  <b>Clayey Sand</b> Fine grain sand and medium grain gravels (<5%), orange, dry, very loose, poorly sorted, increased clay content from 0.6 m bgs, no odour, no staining.			0		DS	Y		0	VO_MW05_0.2		
			1					0			
			2						0		
<b>Clayey Sand</b> Grey with orange mottling, medium coarse grained, dry, moderate sorting, sub-angular, damp at 2.5 m bgs, gravel inclusions (<1cm) at 3 m bgs, no odour, no staining.			3		US	Y		0	VO_MW05_3.0		
			4					0			
<b>Sandy Clay</b> Pale brown, damp, soft, medium plasticity, homogenous, gravel inclusions (<1cm), brown, low plasticity at 4.5 m bgs, moist at 6 m bgs, saturated at 7 m bgs, no odour, no staining.			5					0			
			6					0			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>3.533</b>
Drill Finish Date: <b>4/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.172</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>10.724</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362177.5</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328855.57</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8							
			9							
			10							Target depth achieved
End of Log			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>2.5</b>	Final Water Level (m bgl): <b>0.131</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>12.805</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.424</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361968.07</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328685.89</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>0.9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Dark grey/black, moist, very loose, fine grained, poorly sorted with some shale fragments, no odour, possible staining from shale.			0			Y		0	VO_MW06_0.2	
<b>Sand</b> Grey/brown, moist, very loose, fine grained, well sorted, no odour, no staining.			0.5					0		
<b>Clay</b> Tan with orange oxidised lensing, moist, soft, high plasticity, saturated from 0.9 m bgs, no odour, no staining.			1					0		
<b>Clayey Sand</b> Tan, wet, very loose, fine grained, well sorted, no odour, no staining.			1.5					0		
<b>Sand</b> Light brown with orange mottling, damp, loose, medium coarse grained, well sorted, sub-angular, no odour, no staining.			2			Y		0.5	VO_MW06_2.0	
			2.5							Target depth achieved
End of Log			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **26/02/2014** Total Depth (m): **10** Final Water Level (m bgl): **8.711**  
 Drill Finish Date: **4/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.091**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **18.691**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **361723.71**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6328577.5**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Light grey, dry, very loose, fine grained, rootlets, no odour, no staining.			0		DS	Y		0	VO_MW07_0.1	
<b>Sand</b> Yellow, damp, loose, fine - medium grained, moderate sorting, sub-rounded gravels (<15mm), no odour, no staining.								0		
<b>Clayey Sand</b> Orange/red, soft, moist, fine grained, moderate sorting, sub-angular, gravels (<25mm), from 1.4 m bgs, pale yellow, red and orange mottling, from 2.0 m bgs light brown with orange mottling, no odour, no staining.			1		DS	Y		0	VO_MW07_1.0	
								0		
				2				0		
				3				0		
<b>Sandy Clay</b> Light grey with orange/brown mottling, damp, soft, medium plasticity, homogenous, no odour, no staining.			4				0			
			5		US	Y		0	VO_MW07_5.0	
<b>Clayey Sand</b> Yellow/brown, damp, loose, coarse grained, moderate sorting, sub-rounded, moist at 7.0 m bgs, saturated at 7.5 mbgs, no odour, no staining.			6				0			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VO\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>8.711</b>
Drill Finish Date: <b>4/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.091</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.691</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361723.71</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328577.5</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8							
			9							
			10							Target depth achieved
End of Log			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **12.5** Final Water Level (m bgl): **8.711**  
 Drill Finish Date: **24/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **22.595**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **23.353**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363673.4**  
 Drill Method: **NDD/PT/AK/AH** Surface Completion: **Monument** Northing (MGA): **6328193.09**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **11.7**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Yellow / brown, dry, firm, non-plastic, some gravel inclusions (<2mm), no odour, no staining.			0		DS	Y		0	VO_MW08_0.1	
<b>Sandy Gravel</b> Light brown, loose, non-plastic, coarse grained sand, angular, well sorted, some gravel inclusions (2-10mm), sub-angular, well sorted, no odour, no staining.			0.5		DS	Y		0	VO_MW08_0.5	
<b>Sandy Clay</b> Orange with red and white mottling, medium dense, medium plasticity, no odour, no staining.			1					0		
<b>Clayey Sand</b> Light grey with brown / orange mottling, medium dense, fine grained, well sorted, sub-angular, slightly damp at 3m bgs, no odour, no staining.			1.8		US	Y		0	VO_MW08_1.8	
			2		US	Y		0	D01_240314_CM	
			3					0		
			4					0		
<b>Sandy Clay</b> Light grey / brown, dry, soft, low plasticity, homogenous, hard and dense consolidation of sand at 4.8m bgs, dark brown at 5m bgs, no odour, no staining.			5					0		
<b>Conglomerate</b> Weathered bedrock, alluvial gravel, very dense, dry, hard, coarse gravel and pebble inclusions (< 1cm), slightly damp at 9m bgs, no odour, no staining.			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

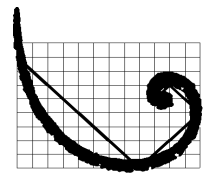
Log By: **DB/CM**

Checked By: **KD**

Page 1 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VO\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>12.5</b>	Final Water Level (m bgl): <b>8.711</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>22.595</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>23.353</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363673.4</b>
Drill Method: <b>NDD/PT/AK/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328193.09</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					0		
			9					0		
			10					0		
			11					0		
<b>Conglomerate</b> Bedrock / alluvial pebbles (<3cm), saturated, no odour, no staining.			12					0		

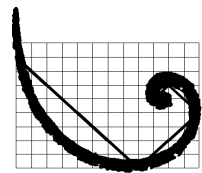
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VO\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>12.5</b>	Final Water Level (m bgl): <b>8.711</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>22.595</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>23.353</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363673.4</b>
Drill Method: <b>NDD/PT/AK/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328193.09</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
										Target depth achieved
End of Log			13 14 15 16 17 18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **26/02/2014** Total Depth (m): **12** Final Water Level (m bgl): **6.769**  
 Drill Finish Date: **27/02/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **35.384**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **35.935**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **361150.4**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6328102.37**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **9**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Silty Gravel</b> Grey, dry, loose, fine grained, moderate sorting, sub-angular gravel, no odour, no staining.			0		DS	Y		0.2	VO_MW09_0.1		
<b>Sandy Clay</b> Light brown, orange mottling, moist, very soft, medium plasticity, homogenous, no odour, no staining.						DS	Y		0.2	VO_MW09_0.5	
<b>Sand</b> Light brown, damp, loose, fine grained, well sorted, sub-rounded, brown with orange mottling at 3.0 m bgs, no odour, no staining.			1						0.9		
									0		
			2			US	Y		1.2	VO_MW09_2.0	
			3						1.5		
<b>Clay</b> Grey, damp, hard, non-plastic, homogenous, no odour, no staining.		4						2.2			
<b>Sand</b> Light brown/orange, dry, dense, coarse grained, well sorted, sub-rounded, no odour, no staining.		5						1.2			
<b>Sandy Clay</b> Grey, dry, hard, fine grained, well sorted, sub-rounded, no odour, no staining.		6						0.4			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>6.769</b>
Drill Finish Date: <b>27/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>35.384</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>35.935</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361150.4</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328102.37</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Sand</b> Pale brown, dry, loose, medium coarse grained, moderate sorting, sub-rounded, light brown at 6.5 m bgs, damp at 7.0 m bgs, gravel inclusions (<5cm) at 8.0 m bgs, orange at 8.8 m bgs, no odour, no staining.			7					1.3		
			8		US	Y		2.4	VO_MW09_8.0	
			9						0	
			10							
			11							
			12							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>6.264</b>
Drill Finish Date: <b>26/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>30.956</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>31.657</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361045.67</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6327953.84</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Gravel, black, dry, loose, coarse grained, poor sorting, angular, black bitumen/coal inclusions (<10cm), no odour, no staining.			0		DS	Y		0.2	VO_MW10_0.2	
<b>Gravelly Sand</b> Light brown, dry, very loose, medium coarse grained, moderate sorting, sub-angular, gravel inclusions (<5cm), no odour, no staining.			0.6					0.6		
<b>Sandstone</b> Bedrock.			1		DS	Y		0.2	VO_MW10_1.0	
<b>Clayey Sand</b> Light brown, dry, fine grained, moderate sorting, sub-angular, no odour, no staining.			2		US	Y		0	VO_MW10_2.0	
<b>Clayey Sand</b> Pale brown, dry, fine grained, moderate sorting, sub-angular, gravel inclusions (<5cm) at 3.0 m bgs, damp at 5 m bgs, saturated at 9.5 m bgs, no odour, no staining.			3					0		
			4					0		
			5					0		
			6					0		

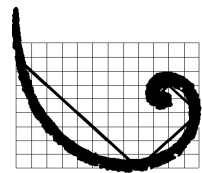
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>6.264</b>
Drill Finish Date: <b>26/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>30.956</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>31.657</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361045.67</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6327953.84</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					0		
			9					0		
			10					0		
			11							
			12							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW11**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **26/02/2014** Total Depth (m): **12** Final Water Level (m bgl): **7.996**  
 Drill Finish Date: **27/02/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **32.168**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **32.717**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **360396.17**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6327957.48**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **9**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Silty Sand</b> Grey/brown, dry, very loose, fine grained, well sorted, sub-angular, organic roots, no odour, no staining.			0		DS	Y		1.9	VO_MW11_0.1		
<b>Clayey Sand</b> Orange/brown, loose, medium coarse grained, moderate sorting, sub-angular, sandstone inclusions (<5cm), no odour, no staining.			0.9					0.9			
<b>Clay</b> Light grey, dry, hard, non-plastic, heterogeneous, pale white at 1.4 m bgs, no odour, no staining.			1					0.6			
						DS	Y		0.2	VO_MW11_1.5	
				2					0		
				3					0		
<b>Silty Sand</b> White/grey, orange mottling, dry, loose, fine grained, well sorted, well-rounded, orange/red with brown mottling at 3.2 m bgs, coarse grained at 4.0 m bgs, no odour, no staining.			4					0			
			5					0			
<b>Clay</b> Orange/grey, damp, medium stiff, low plasticity, heterogeneous, no odour, no staining.			6					0			
<b>Clayey Sand</b> Orange/brown, dry, loose, fine grained, well sorted, sub-angular, weathered gravel inclusions (<3cm),											

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

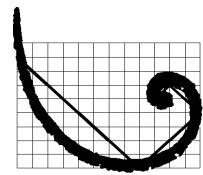
Log By: **CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW11**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>7.996</b>
Drill Finish Date: <b>27/02/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>32.168</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>32.717</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>360396.17</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6327957.48</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>9</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
			8					3.4		
			9					0.9		
			10							
			11							
			12							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

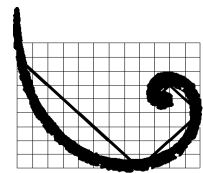
Log By: **CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW12**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>4/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl): <b>0.770</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>11.192</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>11.961</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359479.62</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6327991.03</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>1.4</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Some medium gravel, medium brown, moist, very loose, fine grained, well sorted, rounded (<5%), rock inclusion and sub-angular (10-35cm) at 0.3 to 0.6 m bgs, no odour, no staining.			0		DS	Y		0	VO_MW12_0.2	
			0.5		DS	Y		0	VO_MW12_0.5	
<b>Clay</b> Light grey, orange mottling, moist, very soft, high plasticity, no odour, no staining.			1					0		
<b>Sandy Clay</b> Fine grained sand, light grey, moist, very soft, medium plasticity, saturated from 1.4 m bgs, no odour, no staining.			1.5		US	Y		0	VO_MW12_1.5	
			3					0		
<b>Clayey Sand</b> Grey, wet, medium dense, fine grained, well sorted, homogenous, no odour, no staining.			3					0		
End of Log			3					0		
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/GP**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW13**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>7/03/2014</b>	Total Depth (m): <b>5.1</b>	Final Water Level (m bgl): <b>3.654</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>17.887</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>18.528</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359541.22</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6327817.94</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>3.7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Clayey Sand, medium brown/grey, moist, fine (<5%) medium grained, well sorted, rounded gravel, increased clay content (<20%) from 0.3 m bgs, some orange, very soft and highly plastic clumps, no odour, no staining.			0		DS	Y		0	VO_MW13_0.2	
			0		DS	Y		0	VO_MW13_0.5	
<b>Sandy Clay</b> Orange, light grey mottling, moist, very soft, high plasticity, fine medium grained sand (<20%), fine sand only from 1.2 m bgs, no odour, no staining.			1		DS	Y		0	VO_MW13_1.0	
								0		
<b>Sandy Clay</b> With gravel, grey with red/brown, brown mottling, moist, medium stiff, low plasticity, heterogeneous, weathered gravel throughout, no odour, no staining.			2					0		
			3					0		
<b>Sandy Clay</b> With trace of gravel, grey, wet, soft, medium plasticity, homogenous, no odour, no staining.			4		US	Y		0	VO_MW13_3.7	
			5					0		
End of Log			6							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

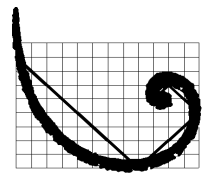
Log By: **RP/GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW14**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **1.714**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **17.615**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **18.356**  
 Driller: **Jeff Black** Casing Diam. (mm): **50** Easting (MGA): **359856.19**  
 Drill Method: **HA/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6327476.33**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4.1**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Topsoil</b>										
<b>Sandy Clay</b> Light brown, dry, loose, well sorted, with some gravels, colour grading to orange from 1.0 m bgs, no odour, no staining.					DS	Y		0	VO_MW14_0.2	
					DS	Y		0	VO_MW14_0.5	
<b>Sandy Clay</b> Orange, dry, stiff, low to medium plasticity, consolidated homogenous, gravel inclusions, colour grading to grey with red mottles and oxidised large angular gravel inclusions from 2.1 m to 2.2 m bgs, no odour, no staining.			1					0		
								0		
			2					0		
<b>Gravelly Sandy Clay</b> Reddish brown with orange mottles, friable, soft, non plasticity, slightly cohesive, moist to wet from 4.1 m bgs, no odour, no staining. Collapsed from 6.0 m to 5.0 m bgs.			3					0		
								0		
			4					0		
					US	Y		0	VO_MW14_4.2	
			5							
			6							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW15**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **5** Final Water Level (m bgl): **0.526**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **17.636**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **18.37**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **359850.59**  
 Drill Method: **HA/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6327322.6**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Topsoil</b>										
<b>Clayey Sand</b> Grey, loose, non plasticity, consolidated, homogenous, no odour, no staining.					DS	Y		0	VO_MW15_0.2	
					DS	Y		0	VO_MW15_0.5	
<b>Sandy Clay</b> Light grey, wet, low plasticity, homogenous, well sorted, grading to grey with red mottles and increasing clay content from 1.4 m bgs, gravels with iron oxide staining from 2.6 m bgs.			1					0		
								0		
			2					0.5		
<b>Sandy Clay</b> Grey, slightly moist, stiff, high plasticity, homogenous, increasing moisture from 3.0 m bgs, no odour, no staining. Collapsed from 5.5 m to 5.0 m bgs.			3					0.1		
			4					0.1		
					US	Y		0.1	VO_MW15_4.5	
				US	Y				DO1_260314_SB	
			5					0.1		Target depth achieved
End of Log										
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW16**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **3/03/2014** Total Depth (m): **4.6** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Wade Manger** Casing Diam. (mm): **NA** Easting (MGA): **361307.43**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6326409.14**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey, moist, very loose, fine grained, well sorted, no odour, possible ash staining.  <b>Gravelly Clay</b> Sandy (<40% fine sand, <20% fine rounded gravel), orange brown, moist, soft, medium plasticity, colour changed to white and light orange mottling, low plasticity, decreasing gravel size <60mm and <10% content from 1.2 m bgs no odour, no staining.			0	■	DS	Y		0	VO_MW16_0.2	
				■	DS	Y		0	VO_MW16_0.5	
<b>Clayey Sand</b> Grey, moist, coarse grained (85% sand, 15% clay), well sorted, homogenous, non-plastic, red oxidised inclusions from ~ 2.3 m bgs, no odour, no staining.			1					0		
			2					0.1		
<b>Sandy Clay</b> Grey with red mottling, moist, high plasticity, some red angular gravel inclusions from 2.7 m bgs, decreasing sand content and increasing stiffness from 2.9 m bgs, high plasticity, increasing moisture from 4.4 to 4.5 m bgs, no odour, no staining.			3					0.2		
			4					0.2		
				■	US	Y		0.1	VO_MW16_4.6	Push tube refusal on very stiff clay at 4.6m. Hole was not advanced with SFA due to close proximity to Gas pipeline
End of Log			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/RP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW17**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **24/03/2014** Total Depth (m): **4.5** Final Water Level (m bgl): **0.669**  
 Drill Finish Date: **27/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.06**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **18.641**  
 Driller: **Wade** Casing Diam. (mm): **50** Easting (MGA): **362568.15**  
 Drill Method: **NDD/PT/HSA** Surface Completion: **Monument** Northing (MGA): **6326131.78**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.5**

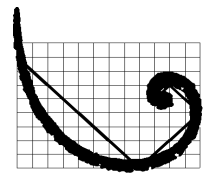
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy gravelly clay, grey with yellow clay inclusions, moist, sub-angular gravels, poorly sorted, increasing shale fragments from 0.4 m bgs with size from fragments to 8 cm, rock-sized shale from 0.7 m to 1.0 m bgs.			0		DS	Y		0.8	VO_MW17_0.2	
			0.2		DS	Y		0.2	VO_MW17_0.4	
<b>Gravelly Clay</b> Brown with red mottles, wet, soft, high plasticity, cohesive, angular gravels, colour changed to grey from 1.3 m bgs, organic black material and angular gravels with visible water infiltrating into bottom of the hole, no odour, no staining.			1					0.6		
			2					0.3		
<b>Peat</b> Organic black swamp peat, black, moist to wet, with some sandy clay throughout, no odour, no staining.			2.6		US	Y		1.2	VO_MW17_2.6	
<b>Clayey Sand</b> Grey, saturated, soft, non plasticity, loose, well sorted, no odour, no staining.			3					0.1		
<b>Sandy Clay</b> Grey with red mottles, high plasticity, homogenous, rare angular gravel lenses oxidised red, no odour, no staining.			4					0.2		
End of Log			5							
			6							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW18**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>5.227</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.965</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>15.643</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362942.42</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6326867.78</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey/brown, dry, very loose, fine grained, well sorted, sub-rounded, organic roots, no odour, no staining.			0			Y		0	VO_MW18_0.1	
<b>Sandy Clay</b> Brown/orange, damp, soft, low plasticity, homogenous, organic roots, no odour, no staining.			0.3					0.3		
<b>Clay</b> Grey, dry, medium stiff, low plasticity, heterogeneous, no odour, no staining.			0.6					0.6		
<b>Clayey Sand</b> Brown, orange mottling, dry, medium dense, moderate sorting, sub-angular, weathered sandstone inclusions (<3cm), light brown at 2.8 m bgs, no odour, no staining.			0.9					0.9		
			2					0.3		
			3					1		
<b>Sandy Clay</b> Light brown, damp, soft, low plasticity, homogenous, moist at 4.5 m bgs, saturated at 5.5 m bgs, no odour, no staining.			4					0.7		
			5			Y		0.9	VO_MW18_5.0	
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

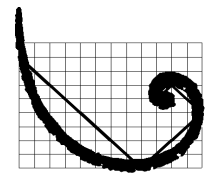
Log By: **CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VO\_MW18**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>5.227</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.965</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>15.643</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362942.42</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6326867.78</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW19**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **5** Final Water Level (m bgl): **3.505**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.484**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **19.239**  
 Driller: **Jeff Black** Casing Diam. (mm): **50** Easting (MGA): **363227.41**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6327156.75**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Yellow, dry, loose, fine well sorted, no odour, no staining.  <b>Sandy Clay</b> Dark orange, moist, loose, low plasticity, fine size grained, well sorted, homogenous, no odour, no staining.			0	■	DS	Y		0	VO_MW19_0.1	
				■	DS	Y		0	VO_MW19_0.5	
<b>Sandstone</b> Orangey red with grey inclusions, dry, friable, non plasticity, coarse grained size, well sorted, homogenous, weathered, no odour, no staining.			1					0		
			2	■	US	Y		0	VO_MW19_2.0	
<b>Sandy Gravel</b> Orangey brown, moist, non plasticity, non cohesive, well sorted, homogenous, with some clay intrusions, wet from 2.5 m bgs, no odour, no staining.			3					0		
			4					0		
End of Log			5					0		Target depth achieved
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW20**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>11</b>	Final Water Level (m bgl): <b>6.24</b>
Drill Finish Date: <b>3/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>24.123</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>24.783</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361431.32</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328336.42</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Gravel</b> Light grey, dry, very loose, fine grained, poor sorting, angular gravels (<5cm), organic roots, no odour, no staining.			0		DS	Y		0.7	VO_MW20_0.1	
<b>Sand</b> Brown, moist, loose, fine grained, moderate sorting, from 0.8 m bgs, orange/brown, no odour, no staining.			1					1.7		
<b>Clayey Sand</b> Light brown, orange mottling, soft, moist, fine grained, moderate sorting, no odour, no staining.			1					1.7		
			1		DS	Y		0.8	VO_MW20_1.5	
			2		US	Y		0	VO_MW20_2.0	
<b>Sandy Clay</b> Grey with red/orange mottling, dry, hard, low plasticity, heterogeneous, no odour, no staining.		2						0		
		3						0		
		4						0		
		5						0		
<b>Clay</b> Light grey with orange mottling, dry, very stiff, non-plastic, heterogeneous, stiff at 5.8 m bgs, gravel inclusions (<3cm) at 6.0 m bgs, low plasticity and moist at 7.0 m bgs, no odour, no staining.		5						0		
		6						0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_MW20**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>11</b>	Final Water Level (m bgl): <b>6.24</b>
Drill Finish Date: <b>3/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>24.123</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>24.783</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361431.32</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328336.42</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					0		
<b>Sandy Clay</b> Light brown, moist, soft, non-plastic, homogenous, saturated at 8.0 m bgs, no odour, no staining.			8					0		
			9							
			10							
			11							Target depth achieved
End of Log			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>4/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl):
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>0</b>
Drill Co: <b>Numac</b>	Casing Type:	Elevation (Case): <b>0</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm):	Easting (MGA): <b>359532.3</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6328069.45</b>
Hole Type: <b>Soil Bore</b>	Water Strike (m bgl): <b>0</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sandy Clay</b> With some gravel (<5%), medium brown, some orange mottling, moist, very soft, high plasticity, fine grained sand, rounded, light brown/orange from 0.3 m bgs, brown with red-brown and some grey mottling from 1.7 to 3.0 m bgs, no odour, no staining.			0			Y		0	VO_SB01_0.2		
						Y		0	VO_SB01_0.5		
			1						0		
			2						0		
			3			Y		0	VO_SB01_3.0		
End of Log			4								
			5								
			6								

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VO\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>3/03/2014</b>	Total Depth (m): <b>3</b>	Final Water Level (m bgl):
Drill Finish Date: <b>4/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>26.97</b>
Drill Co: <b>Numac</b>	Casing Type:	Elevation (Case): <b>26.97</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm):	Easting (MGA): <b>362391.92</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6325943.05</b>
Hole Type: <b>Soil Bore</b>	Water Strike (m bgl): <b>0</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Medium brown, moist (from heavy rainfall), very loose, fine grained, well sorted, rootlets, no odour, no staining.  <b>Sandy Clay</b> Light brown, orange mottling, moist, very soft, high plasticity, fine grained sand (<30%), light brown with red, dry, decreased moisture content from 1.0 m bgs, medium stiff, medium plasticity from 1.3 m bgs.			0			Y		0	VO_SB03_0.2	
						Y		0	VO_SB03_0.5	
			1			Y		0	VO_SB03_1.0	
			2					0		
<b>Clayey Sand</b> Light grey, moist, slight dense, non-plastic, well sorted, homogenous, 70% sand and 30% clay, increased sand from 2.7 m bgs (90% sand and 10% clay), no odour, no staining.			3			Y		0.1	VO_SB03_3.0	
End of Log			4							
			5							
			6							

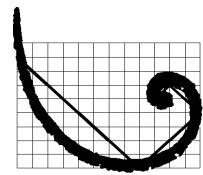
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>2.903</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.153</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>16.82</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363106.2</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329393.89</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Medium brown, dry, very loose, fine grained sand with medium grained gravel (<5%), well sorted, no odour, no staining.			0		DS	Y		0	VP_MW01_0.2	
			0.5		DS	Y		0	VP_MW01_0.5	
<b>Sandstone</b> Orange brown, dry, hard, coarse grained, well sorted, sub-angular, weathered, pebble and gravel inclusions (<2cm), high quartz content, light brown from 1.5 m bgs, light grey-brown from 2.0 m bgs, no odour, no staining.			1					0		
			2					0		
			3						0	
<b>Conglomerate</b> Orange brown sand with grey gravel, dry, hard, fine grained sand, coarse grained gravel, poorly sorted, light grey-brown sand from 4.0 m bgs, brown from 6.0 m bgs, grey and wet from 7.5 m bgs, no odour, no staining.			4		US	Y		0	VP_MW01_4.0	
			6							

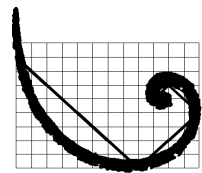
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM/GP**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VP\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>27/02/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>2.903</b>
Drill Finish Date: <b>7/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>16.153</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>16.82</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363106.2</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329393.89</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
					US	Y			VP_MW01_7.5	
<b>Clayey Sand</b> With gravel, grey, wet, very dense, fine grained sand, coarse grained gravel, moderately sorted, rounded, homogenous, no odour, no staining.			8							
			9							Target depth achieved
End of Log			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM/GP**

Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VP\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>4/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>1.361</b>
Drill Finish Date: <b>5/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>12.991</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.68</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363080.9</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329287.15</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Light brown/orange, moist, very soft, medium plasticity, fine grained (<40%), rootlets, no odour, no staining.  <b>Clay</b> Light grey, dark grey mottling (shale), dry, medium stiff, non-plastic, some fine shale/coal fragment (<8mm), colour change to black, very moist, very soft, high plasticity at 0.65 m bgs, no odour, no staining.			0		DS	Y		0	VP_MW02_0.2	
			0.1		DS	Y		0.1	VP_MW02_0.5	
<b>Sandy Clay</b> Light brown, moist, very soft, high plasticity, fine grained (<20%), some fine shale/coal fragment (<8mm), mottled staining (<10%), no odour.			1					0		
<b>Sandstone</b> (Weathered) Brown, moist, soft, gravel and weathered shale inclusions (<2cm), alluvial conglomerate and gravel at 3.2 m bgs, no odour, no staining.			2		US	Y		0	VP_MW02_2.0	
<b>Conglomerate</b> Orange brown sand with grey gravel, moist, coarse grained, poorly sorted			3					0		
			4					0		
<b>Sandstone</b> Light brown, saturated, very soft, homogenous, no odour, no staining.			5					0		
			6					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

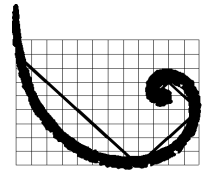
Log By: **RP/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VP\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>4/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>1.361</b>
Drill Finish Date: <b>5/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>12.991</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>13.68</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>363080.9</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329287.15</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>4.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **1.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Hart Chalmers** Casing Diam. (mm): **NA** Easting (MGA): **363121**  
 Drill Method: **HA** Surface Completion: **Backfilled** Northing (MGA): **6329302**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Medium orangey brown, dry, very loose, fine grained size, some dark grey/black staining (from shale/coal fragments), no odour, no staining.			0		DS	Y		0	VP_SB01_0.2	Significant rainfall meant ground became too soft to access location with drill rig. Hole was therefore not advanced beyond 1.5m
<b>Sandy Clay</b> Dark grey/black with some fine orange chumps, damp (no visible water), very soft, high plasticity, some coal/shale fragments, (<25% sand and <5% rubble mixture, visible water from 1.5 m bgs, possible staining (from coal/shale), no odour.			1				0.3			
End of Log			2				0.2			
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP**  
 Checked By: **SB**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **5/03/2014** Total Depth (m): **1.3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Hart Chalmers** Casing Diam. (mm): **NA** Easting (MGA): **363117.7**  
 Drill Method: **HA** Surface Completion: **Backfilled** Northing (MGA): **6329278.18**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Light brown, moist, very soft, high plasticity, fine to medium grained (<30%), poorly sorted, some coal/shale content (<15%), fine grained sand from 0.25 m bgs, black colour due to coal content, no odour.			0	■	DS	Y		0	VP_SB02_0.2	
				■	DS	Y	0.1	VP_SB02_0.5		
			1				0			
End of Log			2							NDD refusal on weathered conglomerate
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP**  
 Checked By: **SB**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **5/03/2014** Total Depth (m): **0.64** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363030.46**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329253.89**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Medium brown, dry, very loose, medium grained, rounded gravel (<10%), no odour, no staining.						Y		0	VP_SB03_0.2	Hand auger refusal at 0.64m on weathered sandstone
<b>Clayey Sand</b> Light brown with some dry orange (oxidised) clumps, dry, very soft, medium plasticity, fine grained (<30%), refusal on weathered sandstone at 0.64 m bgs, no odour, no staining.						Y		0	VP_SB03_0.5	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

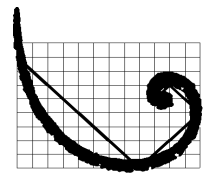
Log By: **RP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **27/02/2014** Total Depth (m): **2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363201.36**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6329225.57**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Clayey Sand</b> Light brown, dry, loose, fine grained, well sorted, no odour, no staining.  <b>Sandy Clay</b> Light brown, orange mottling, moist, soft, high plasticity, fine grained (<10%), decreased moisture content to dry and low plasticity from 0.9 m bgs, colour change to light brown at 1.8 m bgs, weathered sandstone at 2.0 m bgs, no odour, no staining.			0		DS	Y		0	VP_SB04_0.2		
					DS	Y		0	VP_SB04_0.5		
			1						0		
			2		US	Y		86	VP_SB04_2.0		
End of Log			2							Push tube refusal at 2.0m on weathered sandstone	
			3								
			4								
			5								
			6								

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **27/02/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363489.55**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6328039.1**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sand</b> Medium brown/grey, dry, very loose, fine grained, well sorted, no odour but possible staining from adjacent ash dam.  <b>Clay</b> Orange, moist, very soft, high plasticity, increased moisture content and high plasticity from 0.7 m bgs, saturated from 1.5 to 1.6 m bgs, no odour, no staining.	 		0	■	DS	Y		0	VP_SB05_0.2		
			0						0		
			1	■	DS	Y		0	VP_SB05_1.0(TOC)		
			2					0.2			
<b>Clayey Sand</b> Yellow-brown, moist, heterogeneous, well sorted, no staining, low plasticity, saturated, coarse gravel band from 2.8 to 2.9 m bgs.			3	■	US	Y		0.2	VP_SB05_3.0	Target depth achieved	
End of Log			4								
			5								
			6								

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **27/02/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363498.02**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6328073.81**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Medium brown, dry, very loose, fine grained, well sorted, some fine rootlets present, no odour, no staining.			0		DS	Y		0	VP_SB06_0.5	
<b>Clayey Sand</b> Orange, dry, loose to medium dense, fine grained, well sorted, clay content increased (<30%) from 0.4 m bgs, hard friable reddish (oxidised) clumps (<50mm) from 0.7 m bgs, no odour, no staining.			1					0		
								0.2		
			2					0		
<b>Clayey Sand</b> Grey with orange inclusions, saturated at 3.0 m bgs, easily crumbled, coarse grained, well sorted, no staining.			3		US	Y		0.6	VP_SB06_3.0	Target depth achieved
<b>Gravelly Clay</b> With sand, orange-brown, wet, loose, low plasticity, no staining.										
End of Log										
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **3/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **4/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363441.54**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6328104.52**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy Clay, light brown, moist, soft, medium plasticity, fine grained (<40%) sand, medium grained gravel (<5%), sub-angular, colour change to brown/orange from 0.7 m bgs, no gravel content, fine grained and well sorted sand, no odour, no staining.			0		DS	Y		0	VP_SB07_0.2	
					DS	Y		0	VP_SB07_0.5	
<b>Fill</b> Sandy Clay, brown/orange, fine grained sand, well sorted, no odour, no staining.			1					0		
<b>Ash</b> Medium grey, moist (able to be rolled), medium dense, no odour.								0		
<b>Sand</b> Brown, dry, very loose, fine grained, well sorted, no odour, no staining.								0.5		
<b>Clay</b> Green-brown, moist, firm, consolidated, rare angular gravel throughout, medium plasticity, some organic matter, no staining.			2							
<b>Clayey Sand</b> Yellow-brown, red mottling, moist, non-plastic, well sorted, crumbles when under pressure into individual grains.										
			3		US	Y		0.1	VP_SB07_3.0	Target depth achieved
End of Log										
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **3/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **4/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **363490.36**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6328121.39**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy Clay, light brown, moist, soft, medium plasticity, fine grained (<40%) sand, some medium grained gravel (<5%), no odour, no staining.			0		DS	Y		0	VP_SB08_0.2	
<b>Clayey Sand</b> With medium to coarse grained gravel (<5%), light brown with clumps of light brown soft clay, dry, loose, fine grained, well sorted, no odour, no staining.			0.5		DS	Y		0	VP_SB08_0.5	
<b>Ash</b> Medium grey, moist (able to be rolled), medium dense, well sorted, no odour.			1					0		
<b>Clayey Sand</b> Orange brown, dry, very loose, medium grained gravel (<5%), moderately sorted, grading to grey-green from 1.6 to 1.9 m bgs, no odour, no staining.			1.6					0		
<b>Sandy Clay</b> Orange, red mottling, moist, small rounded gravel throughout, increasing coarseness and sand content from 2.6 m bgs.			2					0.8		
<b>Clayey Sand</b> Orange-brown, moist, coarse grained, well sorted, homogenous, no staining.			3		US	Y		0.2	VP_SB08_3.0	Target depth achieved
End of Log			3							
			4							
			5							
			6							

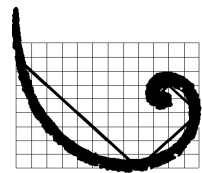
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **1.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Wade/ Hart** Casing Diam. (mm): **NA** Easting (MGA): **363380**  
 Drill Method: **HA** Surface Completion: **Backfilled** Northing (MGA): **6328346**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Medium brown, dry, very soft, medium plasticity, some rootlets present, no odour, no staining.			0		DS	Y		0	VP_SB09_0.2	Significant rainfall made ground too soft to use drill rig at this location. Soil bore was not advanced beyond 1.5m
<b>Ash</b> Light grey, dry, very loose (powdery), very fine, no odour.			1					0		
End of Log			2					0		
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

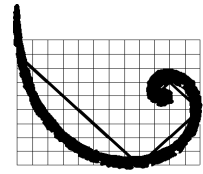
Log By: **RP**

Checked By: **SB**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VP\_SB10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **1.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **17/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Jeff Black** Casing Diam. (mm): **NA** Easting (MGA): **363407**  
 Drill Method: **HA** Surface Completion: **Backfilled** Northing (MGA): **6328366**  
 Hole Type: **Soil Bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Medium brown, moist (no visible water), very soft, high plasticity, some rootlets present, no odour, no staining.			0		DS	Y		0	VP_SB10_0.2	Significant rainfall made ground too soft to use a drill rig at this location. Soil bore was therefore not advanced beyond 1.5m
<b>Ash</b> Light grey, very loose (powdery), very fine, no odour.			1		DS	Y		0	VP_SB10_0.5	
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

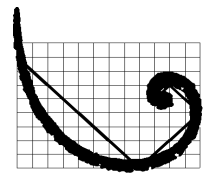
Log By: **RP**

Checked By: **SB**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>0.2</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>200</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Dane Brookes</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>363763.75</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6328669.16</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Brown, slightly moist, medium coarse grained, well sorted, sub-angular, some gravel, <2mm well sorted sub-rounded.			0		DS	Y		0	VQ_SB01_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

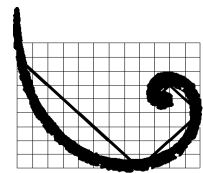
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **363835.17**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6328714.92**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Brown/orange, medium dense, slightly moist, moderately sorted, gravel well sorted, sub-rounded, 2-5m size, no odour, no staining.			0		DS	Y		0	VQ_SB02_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>0.2</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>200</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Dane Brookes</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>363912.59</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6328844.37</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Yellow/brown, dry, medium dense, medium coarse grained, moderately sorted, some gravel, sub-angular, <2mm size.			0		DS	Y		0	VQ_SB03_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VQ\_SB04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **363991.41**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6328995.26**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Light brown, dry, medium dense, fine sand, moderately sorted, gravel sub-rounded, well sorted, <2mm, no odour, no staining.			0		DS	Y		0	VQ_SB04_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **NA** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **364116.18**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329231.97**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Gravel</b> Dark grey, dry, coarse grained, well sorted, angular, <2mm, coarse grained sand, well sorted.			0		DS	Y		0	VQ_SB05_0.1	
End of Log			0 1 2 3 4 5 6							

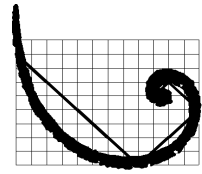
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **364145.23**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329287.42**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Dark grey, dry, medium dense, fine grained, well sorted, no odour, no staining.			0		DS	Y		0.1	VQ_SB06_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VQ\_SB07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **364204.03**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329388.1**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Brown, dry, medium dense, fine grained, moderately sorted, gravel poorly sorted, sub-rounded, 2-10mm, no odour, no staining.			0		DS	Y		0	VQ_SB07_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

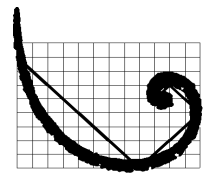
Log By: **DB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **364275.6**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329525.14**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Light brown, dry, medium dense, fine sand, moderately sorted, gravel sub-rounded, well sorted, <2mm, no odour, no staining.			0		DS	Y		0	VQ_SB08_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.2** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Dane Brookes** Casing Diam. (mm): **NA** Easting (MGA): **364338.05**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6329643.53**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Gravel</b> Dark grey, dry, coarse grained gravel, angular, <1mm, coarse grained sand, well sorted.			0		DS	Y		0	VQ_SB09_0.1	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

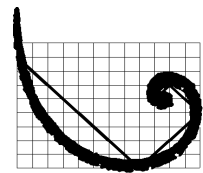
Log By: **DB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>24/03/2014</b>	Total Depth (m): <b>0.2</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>200</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Stephanie Brookes</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364345.02</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329709.3</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey black, dry, loose, coarse gravels throughout, no staining, organic matter throughout (leaves / roots).			0		DS	Y		0	VQ_SB10_0.2	
End of Log			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VQ\_SB11**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>24/03/2014</b>	Total Depth (m): <b>0.2</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>200</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Stephanie Brookes</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364341.96</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329789.1</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey black, dry, loose, coarse gravels throughout, no staining, organic matter throughout (leaves / roots).			0		DS	Y		0	VQ_SB11_0.2	
End of Log			0 1 2 3 4 5 6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VQ\_SB12**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **24/03/2014**      Total Depth (m): **0.2**      Final Water Level (m bgl): **NA**  
 Drill Finish Date: **24/03/2014**      Hole Diam. / Width (mm): **200**      Elevation (Ground): **NA**  
 Drill Co: **ERM**      Casing Type: **NA**      Elevation (Case): **NA**  
 Driller: **Stephanie Brookes**      Casing Diam. (mm): **NA**      Easting (MGA): **364331.5**  
 Drill Method: **Grab Sampling**      Surface Completion: **Backfilled**      Northing (MGA): **6329803.37**  
 Hole Type: **Soil bore**      Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey black, dry, coarse gravels throughout, no staining, organic matter throughout (leaves / roots). End of Log			0		DS	Y		0	VQ_SB12_0.2	
			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_C\_SS01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014**      Total Depth (m): **0.5**      Final Water Level (m bgl): **NA**  
 Drill Finish Date: **12/03/2014**      Hole Diam. / Width (mm): **50**      Elevation (Ground): **NA**  
 Drill Co: **ERM**      Casing Type: **NA**      Elevation (Case): **NA**  
 Driller: **Janene Devereux**      Casing Diam. (mm): **NA**      Easting (MGA): **362440.55**  
 Drill Method: **PT**      Surface Completion: **NA**      Northing (MGA): **6330681.72**  
 Hole Type: **Sediment core**      Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Fine grained, consistent, dark grey, very wet, medium density - dense, medium plasticity, well sorted, homogenous, H2S odour.					US	Y		0	VR_C_SS01_0.20	
					US	Y		0	VR_C_SS01_0.50	
<b>Silty Clay</b> Fine grained, some sand present (~10%), dark grey, moist, medium density - dense, medium plasticity, well sorted, homogenous, H2S odour, woody debris throughout (~5%).			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD

Checked By: KD

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VR\_C\_SS02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **12/03/2014**      Total Depth (m): **0.5**      Final Water Level (m bgl): **NA**  
 Drill Finish Date: **12/03/2014**      Hole Diam. / Width (mm): **50**      Elevation (Ground): **NA**  
 Drill Co: **ERM**      Casing Type: **NA**      Elevation (Case): **NA**  
 Driller: **Janene Devereux**      Casing Diam. (mm): **NA**      Easting (MGA): **362023.09**  
 Drill Method: **PT**      Surface Completion: **NA**      Northing (MGA): **6330495.68**  
 Hole Type: **Sediment core**      Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Brown/grey, some sand particles (~10%), very wet, medium density - dense, medium high plasticity, well sorted, homogenous, slight H2S odour.			0	■	US	Y		0	VR_C_SS02_0.10	
				■	US	Y		0	VR_C_SS02_0.50	
<b>Silty Clay</b> Brown/grey, some sand particles (~10%), moist, medium density - dense, medium high plasticity, well sorted, homogenous, slight H2S odour, small amount of woody debris and shells.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_C\_SS03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>12/03/2014</b>	Total Depth (m): <b>0.4</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>361807.48</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329954</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

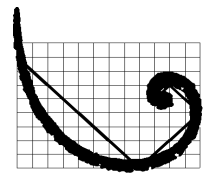
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Fine grained, dark grey, rock and shell fragments, medium density - dense, medium plasticity, well sorted, homogenous, wet, no odour.					US	Y		0	VR_C_SS03_0.15	
					US	Y		0	VR_C_SS03_0.40	
<b>Silty Clay</b> Fine grained, brown/grey, some shell fragments and woody debris, medium density - dense, medium plasticity, well sorted, homogenous, moist, no odour.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VR\_C\_SS04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>361132.23</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329163.56</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Dark brown, dense, soft, high plasticity, high amount of woody debris, wet from 0 to 0.10 m, moist from 0.1 to 0.2 m, hydrocarbon odour, either oil/petrol terrestrial sediment.					US	Y		0	VR_C_SS04_0.20	
					US	Y		0	VR_C_SS04_0.30	
<b>Sandy Clay</b> Black, moist/dry, medium density, very high level of woody debris, terrestrial sediment.			1							
End of Log			2							
			3							
			4							
			5							
			6							

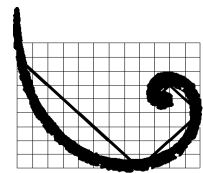
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VR\_C\_SS05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **0.8** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **50** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Janene Devereux** Casing Diam. (mm): **NA** Easting (MGA): **360829.43**  
 Drill Method: **PT** Surface Completion: **NA** Northing (MGA): **6330021.75**  
 Hole Type: **Sediment core** Water Strike (m bgl): **NA**

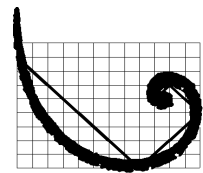
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Silty, fine grained, sand (~10%), dark grey/blue grey, moist, dense, very soft to soft, medium plasticity, anoxic, organic, H2S odour.  <b>Sandy Clay</b> Silty, with distinct thin (~1cm) bands of darker silty clay, fine grained, sand (~10%), dark grey/blue grey, moist, dense, very soft to soft, medium plasticity, anoxic, organic, H2S odour.  <b>Sandy Clay</b> Brown, medium grain, moist, soft, low medium plasticity, ~30% woody debris.  End of Log			0	■	US	Y	0	VR_C_SS05_0.25		
			0.55	■	US	Y	0	VR_C_SS05_0.55		
			0.80	■	US	Y	0	VR_C_SS05_0.80		
			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VR\_C\_SS06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>0.3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>359911.25</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329471.87</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Black/grey, medium grain, loose, wet, generally uniform.			0		US	Y		0	VR_C_SS06_0.15	
<b>Sandy Clay</b> Light grey, very dense, medium stiff, consolidated clay, no odour.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_C\_SS07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>0.3</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>359659.8</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6328916.77</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Grey/brown, moist, medium grained, loose, ~ 50% of gravel portions, ranging from ~2 to 50mm diameter, no odour, potentially road base.					US	Y		0	VR_C_SS07_0.2	
					US	Y		0	VR_C_SS07_0.3	
<b>Clay</b> White and orange, moist, soft, medium plasticity, same consistency, gravel ~10% up to 20mm diameter.			1							
End of Log			2							
			3							
			4							
			5							
			6							

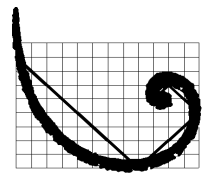
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>1.0</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>362337.75</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329937.23</b>
Hole Type: <b>Sediment Core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Dark grey, consistent, homogenous, moist, medium dense-dense, soft, medium high plasticity, slight H2S odour, shell fragments.			0		US	Y		0	VR_M_SS01_0.20	
					US	Y		0	VR_M_SS01_0.40	
<b>Silty Clay</b> Dark grey, cone consistent throughout, homogenous, moist, medium dense-dense, soft, medium high plasticity, slight H2S odour, shell fragments.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: KD

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>12/03/2014</b>	Total Depth (m): <b>0.5</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>12/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>362153.22</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6330375.11</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Fine grain, dark grey/brown, wet, medium density - dense, medium - high plasticity, well sorted, small sand fragments (5%), some shell fragments, H2S odour, anoxic.			0		US	Y		0	VR_M_SS02_0.25	
					US	Y		0	VR_M_SS02_0.50	
<b>Silty Clay</b> Fine grain, dark grey/brown, moist, medium density - dense, medium - high plasticity, well sorted, small sand fragments (5%), some shell fragments, H2S odour, anoxic.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: KD

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>362568.06</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329661.77</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Dark grey, consistent, homogenous, moist, medium dense-dense, soft, medium high plasticity, slight H2S odour, shell fragments at 0-5 cm.				■	US	Y		0	VR_M_SS03_0.20	
				■	US	Y		0	VR_M_SS03_0.45	
<b>Silty Clay</b> Dark grey, cone consistent throughout, homogenous, moist, medium dense-dense, soft, medium high plasticity, slight H2S odour, shell fragments.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>362489.38</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329464.73</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

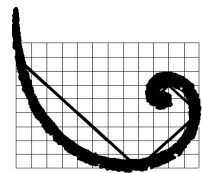
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Clay</b> Dark grey, consistent, homogenous, moist, medium dense-dense, soft to medium stiff, slight H2S odour, some shell fragments.			0		US	Y		0	VR_M_SS04_0.25	
					US	Y		0	VR_M_SS04_0.50	
<b>Silty Clay</b> Dark grey, cone consistent throughout, homogenous, moist, medium dense-dense, soft to medium stiff, slight H2S odour, some shell fragments.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **13/03/2014** Total Depth (m): **1.0** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **13/03/2014** Hole Diam. / Width (mm): **50** Elevation (Ground): **NA**  
 Drill Co: **ERM** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Janene Devereux** Casing Diam. (mm): **NA** Easting (MGA): **362831.7**  
 Drill Method: **PT** Surface Completion: **NA** Northing (MGA): **6329610.76**  
 Hole Type: **Sediment core** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> With some clay, dark grey/black, loose, medium grain, gravel <5mm particle size,			0		US	Y		0	VR_M_SS05_0.2	
<b>Gravelly Sand</b> Grey/brown, medium to coarse grained, loose, gravel up to 20mm ranging in size, no odour, potentially road base.					US	Y		0	VR_M_SS05_0.60	
<b>Sandy Clay</b> Brown, small amount of woody debris, dense, medium high plasticity.			1		US	Y		0	VR_M_SS05_1.0	
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VR\_M\_SS06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>13/03/2014</b>	Total Depth (m): <b>0.8</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>13/03/2014</b>	Hole Diam. / Width (mm): <b>50</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Janene Devereux</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>362609.22</b>
Drill Method: <b>PT</b>	Surface Completion: <b>NA</b>	Northing (MGA): <b>6329311.3</b>
Hole Type: <b>Sediment core</b>	Water Strike (m bgl): <b>NA</b>	

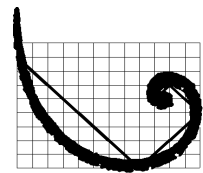
Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Silty, sand ~10%, dark grey, wet, soft, medium dense, shell fragments throughout, slight H2S odour.					US	Y		0	VR_M_SS06_0.30	
<b>Silty Clay</b> Grey, moist, homogenous, woody debris, dense, soft, H2S odour.					US	Y		0	VR_M_SS06_0.65	
<b>Silty Clay</b> Grey, moist, soft, homogenous.			1							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JD**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>5</b>	Final Water Level (m bgl): <b>2.571</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>3.053</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>2.992</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364035.43</b>
Drill Method: <b>NDD/PT</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329989.07</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not Observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Silty Sand, brown, damp, loose, fine grained, well sorted, homogenous, no odour, no staining.			0		DS	Y		0	VS_MW01_0.2	
<b>Fill</b> Gravelly Silty Sand, brown, damp, loose, fine grained sand, coarse grained gravel, moderately sorted, angular to sub-rounded gravel, homogenous, no odour, no staining.			1					0		
<b>Fill</b> Clayey Gravelly Sand, brown, moist, medium dense, fine grained sand, medium coarse grained gravel, moderately sorted, sub-rounded gravel, homogenous, no odour, no staining.			1		DS	Y		0	VS_MW01_1.5	
<b>Fill</b> Clayey Sand, clay intermixed, pale red-brown and grey, moist, medium dense, fine coarse grained sand, medium plasticity, well sorted, homogenous, no odour, no staining.			2					0.4		
<b>Gravelly Sand</b> Clayey, orange-brown, moist, medium dense, fine grained sand, medium coarse grained gravel, moderately sorted, sub-rounded gravel, homogenous, no odour, no staining.			3							
<b>Sandy Clay</b> Gravelly, light brown with grey and dark brown mottling, moist, medium stiff, low plasticity, heterogeneous, no odour, no staining.			3		US	Y		0.7	VS_MW01_3.0	
<b>Gravelly Sand</b> Grey, damp, loose, medium coarse grained sand, well sorted, sub-angular, gravel inclusions (<1cm), no odour, no staining.			4							
<b>Clay</b> Orange/brown, damp, soft, low plasticity, homogenous, moist and very soft at 4.0 m bgs, grey mottling at 4.1 m bgs, no odour, no staining.			4					0.3		
<b>Sand</b> Grey, saturated, fine grained, well sorted, sub-angular, no odour, no staining.			5							Target depth achieved
<b>Gravelly Clay</b> Orange/brown, moist, medium stiff, low plasticity, heterogeneous, black and light grey mottling at 4.9 m bgs, no odour, no staining.			5					0.8		
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.255**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.068**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **2.973**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364063.13**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330010**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **Not Observed**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Silty Sand, brown, damp, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.			0		DS	Y		0	VS_MW02_0.5	
<b>Fill</b> Gravelly Silty Sand, brown, damp, loose, fine grained sand, coarse grained gravel, moderately sorted, angular to sub-rounded gravel, homogenous, no odour, no staining.			1		DS	Y		0	VS_MW02_1.0	
<b>Fill</b> Gravelly Sandy Clay, light brown with grey and red-brown, black gravel, moist, medium stiff, medium plasticity, heterogeneous, no odour, no staining.			2					0		
<b>Sandy Clay</b> With gravel, grey with brown and red-brown, moist, medium stiff, medium plasticity, homogenous, red-brown and grey, low plasticity from 1.3 m bgs, no odour, no staining.			3					1		
<b>Sandy Clay</b> Orange-brown, damp, medium stiff, low plasticity, heterogeneous, grey mottling at 2.7 m bgs, dry at 3.5 m bgs, moist and soft at 5.0 m bgs, grey mottling at 5.5 m bgs, no odour, no staining.			4		US	Y		0.6	VS_MW02_4.0	
			5					1.2		
			6					0.9		Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **6.3** Final Water Level (m bgl): **2.735**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **200** Elevation (Ground): **3.314**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.244**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364159.71**  
 Drill Method: **HA/PT/HFA** Surface Completion: **Gatic** Northing (MGA): **6330158.34**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Brown, moist, loose, non plastic, some grass and roots, no staining, no odour			0.1		DS	Y		0.1	VS_MW03_0.2	
<b>Sandy Clay</b> Orange brown, moist, loose, non-plastic, occasional roots, no staining, no odour			0.1					0.1		
<b>Clay</b> Grey, moist, moderately soft, highly plastic, no staining, no odour			0.7		DS	Y		0.7	VS_MW03_1.0	
<b>Gravelly Sandy Clay</b> Dark brown, moist, moderately plastic, contains shells, no staining, no odour			0.2					0.2		
<b>Clay</b> Grey, moist, soft, highly plastic, minor black staining, no odour			0.4					0.4		
<b>Sandy Clay</b> Black, moist, loose, contains shell fragments, no staining, no odour			0.4					0.4		
<b>Clay</b> Grey with red and yellow staining, moist, soft, highly plastic, no odour			0.9					0.9		
<b>Silty Clay</b> Black, moist, soft, high plasticity, high organic matter content (roots etc.) decay odour			0.9					0.9		
<b>Silty Sand</b> Dark grey, well sorted, fine grained, wet, no odour			0.9					0.9		
<b>Sandy Clay</b> Dark grey, wet, soft, highly plastic, no staining, no odour, becoming very soft at 3.9m bgs			1		US	Y		1	VS_MW03_4.0	
<b>Clay</b> Grey with minor orange staining, moderately stiff, moist, no odour			0.2					0.2		Target depth achieved
<b>Clayey Sand</b> Grey with increasing orange staining, wet, loose, no odour			0.3					0.3		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JE**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

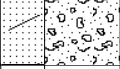
**ID: VS\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>14/03/2014</b>	Total Depth (m): <b>6.3</b>	Final Water Level (m bgl): <b>2.735</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>200</b>	Elevation (Ground): <b>3.314</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.244</b>
Driller: <b>Josh Taberner</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364159.71</b>
Drill Method: <b>HA/PT/HFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330158.34</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>3</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JE

Checked By: KD

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **5** Final Water Level (m bgl): **2.733**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **4.476**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **4.398**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364137.24**  
 Drill Method: **NDD/PT** Surface Completion: **Gatic** Northing (MGA): **6330188.87**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **3**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Clay</b> Grass			0		DS	Y		0.1	VS_MW04_0.2	
<b>Sandy Clay</b>								0.1		
<b>Sandy Clay</b> Brown, moist, loose, non-plastic, some grass roots, no odour, no staining.										
<b>Sandy Clay</b> Orange brown, moist, loose, non-plastic, occasional hard clay pieces.			1		DS	Y		0.2	VS_MW04_1.0	
<b>Sandy Clay</b> Gravelly, orange, moist, loose, non-plastic, no odour, no staining.								0.1		
			2					0.1		
<b>Sandy Clay</b> Brown with orange, red and white mottling, moist, low plasticity, some gravel, poorly sorted, 2-5mm, sub-rounded.			3					0		
			4					0		
<b>Sandy Clay</b> Grey, moist, well sorted, medium coarse grained.			5					0		
<b>Sandy Clay</b> White with red and orange mottled, moist, dense, dark brown, moist, large amount of organic material at 5.0 m bgs, high plasticity.										
			6		US	Y		0.3	VS_MW04_6.0	

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **JE/DB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **14/03/2014** Total Depth (m): **5** Final Water Level (m bgl): **2.628**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.192**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.064**  
 Driller: **Josh Taberner** Casing Diam. (mm): **50** Easting (MGA): **364106.36**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330258.81**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **2.9**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Bitumen</b>			0		DS	Y			VS_MW05_0.1	
<b>Sandy Gravel</b> Silty, yellow, moist, dense, fine grained sand, fine coarse grained gravel, rounded, moderately sorted, homogenous, no odour, no staining.			0		DS	Y		4.4	VS_MW05_0.5	
			0		DS	Y		5.2	VS_MW05_0.6	
<b>Sandy Gravel</b> Silty, dark brown, moist, fine coarse sand and gravel, rounded to angular, moderately weathered.			1					8.8		
<b>Sandy Clay</b> Gravelly, moist, firm, medium plasticity, fine grained sand and gravel, (<10mm), rounded, slightly weathered, no odour, no staining.			1					9.3		
<b>Silty Sand</b> Dark brown, moist, loose, fine coarse grained sand, slight smell.			2					1.5		
<b>Gravelly Clay</b> Sandy, mottled light grey orange and pink, moist, firm, fine coarse grained sand, fine grained gravel, rounded to sub-rounded.			2					1		
<b>Sandy Silt</b> With rare gravel, light grey, firm, moist, non-plastic, fine grained sand, no odour, no staining.			3					0.5		
<b>Sand</b> Dark brown, moist, loose, medium coarse grained sand, well sorted, no odour, no staining.			3					0.6	VS_MW05_3.5	
<b>Sandy Gravel</b> Light grey, wet, loose, well sorted, <3mm, coarse grained, sub-rounded, no odour, no staining.			4		US	Y		0.3		
<b>Sandy Clay</b> Dark brown, wet, fine grained, low plasticity, well sorted, no odour, no staining.			4					0.1		Target depth achieved
End of Log			5					0.1		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

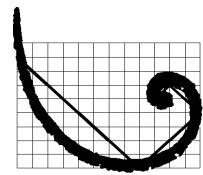
Log By: **KB/DB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VS\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Josh Taberner** Casing Diam. (mm): **NA** Easting (MGA): **364079**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6330019**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Fill</b> Silty Sand, brown, damp, loose, fine grained, well sorted, homogenous, grass roots throughout, no odour, no staining.  <b>Fill</b> Gravelly Silty Sand, brown, damp, loose, fine grained sand, coarse grained gravel, moderately sorted, angular to sub-rounded gravel, homogenous, no odour, no staining.  <b>Fill</b> Gravelly Sandy Clay, light brown with grey and red-brown, black gravel, moist, medium stiff, medium plasticity, heterogeneous, no odour, no staining.  <b>Sandy Clay</b> Light grey, moist, medium stiff, medium plasticity, homogenous, colour changed to orange and moist at 2.5 m bgs, no odour, no staining.			0		DS	Y		0	VS_SB01_0.2		
					DS	Y		0	VS_SB01_0.5		
			1					0			
					DS	Y		0	VS_SB01_1.5		
			2					0.2			
			3		US	Y		0	VS_SB01_3.0	Target depth achieved	
End of Log											
			4								
			5								
			6								

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/CM**

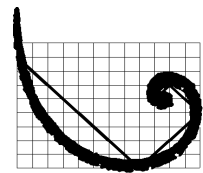
Checked By: **KD**

Page 1 of 1



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VT\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>21/03/2014</b>	Total Depth (m): <b>8</b>	Final Water Level (m bgl): <b>5.167</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.552</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>14.56</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364217.03</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329750.29</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							Target depth achieved
End of Log			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VT\_MW03A**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>21/03/2014</b>	Total Depth (m): <b>1.5</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.092</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364256.75</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6329807.7</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, dark staining (tire rubber/runoff).			0							
<b>Fill</b> Sandy clay with gravel, brown with orangey brown, moist, soft, medium plasticity, homogenous, no odour, no staining.			0.35		DS	Y		0	VT_MW03A_0.35	
<b>Fill</b> Gravelly sandy clay, brown to orangey brown with grey, moist, soft, medium plasticity, heterogeneous, no odour, no staining.			1					0		
<b>Fill</b> Clayey gravelly sand, greyish brown, moist, medium dense, fine sand-coarse gravel, poorly sorted, heterogeneous, no odour, no staining.			1.5					0		Bore hole not advanced beyond 1.5m as use of a drill rig at this location would have affected site operations
<b>Gravelly Sand</b> Orangey brown with reddish brown gravels, moist, medium stiff, medium plasticity, no odour, no staining.			2							
<b>Clayey Gravelly Sand</b> Reddish brown to grey with some orangey brown, damp, dense, fine sand-coarse gravel, medium sorted, homogenous, no odour, no staining.			3							
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VT\_MW03B**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **21/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **5.521**  
 Drill Finish Date: **24/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **14.239**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **14.093**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364251.71**  
 Drill Method: **CC/NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6329793.59**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Concrete</b> Good condition, no staining.			0					0		
<b>Fill</b> Gravelly sandy clay, brown with orange-brown and red-brown, moist, soft, medium plasticity, heterogeneous, no odour, no staining.			0		DS	Y		0	VT_MW03B_0.5	
<b>Clayey Sand</b> Gravelly, grey with orange-brown and red-brown, medium dense, fine sand - coarse gravel, sub-rounded, homogenous, no odour, no staining.			1					0		
<b>Clayey Sand</b> Gravelly, light grey, medium dense, moist, fine to coarse grained, fine to medium gravel, moderately weathered, sub angular to angular, no odour, no staining.			2					0.8		
								1.1		
			3					0.7		
<b>Sand</b> Orange-brown, moist, dense, fine grained, rare fine gravel inclusions, rounded, slightly weathered, no odour, no staining.			4					1.5		
<b>Sandy Silt</b> Layered, red brown, moist, firm, non-plastic, fine to coarse grained sand, fine to medium grained gravel, highly weathered, angular to rounded, iron oxide, no odour, no staining.			5					1.6	VT_MW03B_4.9	
<b>Sand</b> Orange-brown and light grey, moist, dense, fine grained, rare fine gravel inclusions, rounded, slightly weathered, no odour, no staining.			5		US	Y		1.6		
<b>Sandy Silt</b> Layered, red brown, moist, firm, non-plastic, fine to coarse grained sand, fine to medium grained gravel, highly weathered, angular to rounded, iron oxide, wet from 5.0m bgs, no odour, no staining.			6					1.9		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VT\_MW03B**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>21/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>5.521</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.239</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>14.093</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364251.71</b>
Drill Method: <b>CC/NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329793.59</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **3.9** Final Water Level (m bgl): **1.439**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **3.995**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **4.676**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364768.8**  
 Drill Method: **NDD/PT** Surface Completion: **Monument** Northing (MGA): **6330185.67**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **1.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Clayey, light orange-brown, damp, dense, fine grained sand, coarse grained gravel, moderately sorted, homogenous, sub-rounded, no odour, no staining.			0		DS	Y		0	VU_MW01_0.5	
<b>Sandy Clay</b> Brown with grey, orange-brown, moist, medium stiff, medium plasticity, homogenous, grey with brown from 1.2 m bgs, dark brown and tree root inclusions from 1.4 m bgs, wet from 1.5 m bgs, no odour, no staining.			1		DS	Y		0	VU_MW01_1.0	
<b>Sandy Silt</b> Dark grey, wet, soft, non-plastic, fine medium grained sand, no odour, no staining.			2		US	Y		1.4	VU_MW01_1.5	
<b>Gravelly Sand</b> Silty, light grey mottled yellow, moist, loose, fine coarse sand, fine grained gravel, angular to sub-angular, non-plastic, no odour, no staining.			3					0.6		
<b>Silty Sand</b> With rare gravel, light grey, moist, dense, fine grained sand and gravel, rounded (<20mm), smell of sulphur, silt content at 3.5 m bgs.			3					1.5		
								1.9		
								1.8		Target depth achieved
End of Log			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **17/03/2014** Total Depth (m): **6.5** Final Water Level (m bgl): **3.992**  
 Drill Finish Date: **18/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **4.447**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **5.16**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364568.99**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6330284.29**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clay</b> With some gravel and sand, red-brown with grey mottled, dry, angular, gravel 10mm, sub-rounded sand, with organic matter (roots), no odour, no staining.			0	■	DS	Y		0	VU_MW02_0.1	
<b>Clay</b> Grey mottled red, dry, high plasticity, medium stiff, no odour, no staining.			1	■	DS	Y		1	VU_MW02_1.0	
<b>Clay</b> With gravel, red-brown, dry, coarse, angular to sub-rounded gravel, organic matter (roots), no odour, no staining.			1.4					1.4		
<b>Clay</b> With some gravel, dark brown, dry, medium coarse grained gravel, sub-angular, no odour, no staining.			2					9.6		
<b>Clay</b> With some sand, dark brown-black, moist, soft, homogenous, high organic content (roots, rootlets), wet from 1.7 m bgs, no odour, no staining.			2.3					2.3		
<b>Gravelly Clay</b> Sandy, light grey mottled orange brown, hard, moist, fine grained sand, fine medium grained gravel (20mm), sub-angular to sub-rounded, slightly plastic, no odour, no staining.			3					2.6		
<b>Clayey Sand</b> With rare gravel, light grey banded orange brown, dense, fine grained sand, fine medium grained gravel, rounded to sub-rounded (<20mm), non-plastic, no odour, no staining.			4	■	US	Y		3	VU_MW02_4.0	
<b>Sand</b> With some silt and rare gravel, orange-brown with some light grey bands, moist, dense, fine medium grained sand, fine grained gravel 10mm, sub-rounded to sub-angular, no odour, no staining.			5					3.6		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

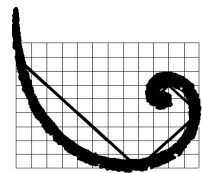
Log By: **TS/KB**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>17/03/2014</b>	Total Depth (m): <b>6.5</b>	Final Water Level (m bgl): <b>3.992</b>
Drill Finish Date: <b>18/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>4.447</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>5.16</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364568.99</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330284.29</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
										Target depth achieved
End of Log			7 8 9 10 11 12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **TS/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **12** Final Water Level (m bgl): **9.8**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **10.556**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **10.552**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364491.37**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Gatic** Northing (MGA): **6330205.09**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **Not observed**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Brown, dry, medium dense, medium coarse, medium to well sorted, some organic content, no odour, no staining			0					0		
<b>Sandy Clay</b> Brown with orange and white mottling, dense, very cohesive, firm, sands well sorted, medium coarse, no odour, no staining. Gravel inclusions from 0.5m. Red and white colouring from 1.0m			1		DS	Y		0	VU_MW03_0.5	
<b>Gravelly Clay</b> Light grey, moist, medium plastic, firm, gravels poorly sorted, 2mm-20mm, sub rounded, white quartz, no odour, no staining			2					1		
<b>Sandy Clay</b> Light brown, moist, soft, medium plasticity, homogenous, no odour, no staining. Dark brown with gravel inclusions at 2.2m bgs.			2					1.6		
<b>Gravelly Sandy Clay</b> Orange/ light brown, moist, stiff. low plasticity, heterogeneous, no odour			3					2.4		
<b>Clay</b> Brown, moist, high plasticity, soft, homogenous, no odour, no staining			4					1.7		
<b>Gravelly Sandy Clay</b> Brown, moist. medium stiff, low plasticity, heterogeneous, no odour, no staining. Dark brown with gravel (alluvial stones) at 4.8m bgs			5					2.1	VU_MW03_6.0	
<b>Sandy Clay</b> Dark brown/black, moist, soft, non plastic, high organic matter presence (sticks, leaves, roots), strong organic odour, no evidence of contamination. Becoming black at 7m bgs, brown at 8 m bgs, and light brown and moist at 10m bgs.			6		US	Y				

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

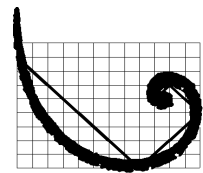
Log By: **DB/CM**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>9.8</b>
Drill Finish Date: <b>14/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.556</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>10.552</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364491.37</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6330205.09</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					2.5		
			8					2.5		
			9					2.7		
			10					3.9		
			11							
			12							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Page 2 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>5.945</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>8.497</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>9.192</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364612.23</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330095.57</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Clayey, light orange-brown, damp, dense, fine grained sand, coarse grained gravel, moderately sorted, heterogenous, no odour, no staining.			0					0		
<b>Silty Clay</b> With gravel, dark brown, moist, soft, low plasticity, homogenous, no odour, no staining.			0					0		
<b>Sandy Clay</b> Gravelly, light orange-brown, moist, medium stiff, low plasticity, homogenous, grey and red-brown from 1.3 m bgs, no odour, no staining.			1					0		
<b>Sandy Clay</b> Gravelly, light grey and orange-brown, moist, medium stiff, low plasticity, fine grained sand, gravel is sub-rounded, sub-angular, homogenous, no odour, no staining.			2		DS	Y		0	VU_MW04_1.5	
			2					3.3		
								2.6		
<b>Clayey Sand</b> Gravelly, light grey and orange bands, moist, loose, low plasticity, fine grained sand, fine medium and sub-rounded to angular gravel, high weathered, homogenous, no odour, no staining.			3					6.4		
			4							
			5					0.7		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW04**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>9</b>	Final Water Level (m bgl): <b>5.945</b>
Drill Finish Date: <b>19/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>8.497</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>9.192</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364612.23</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330095.57</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					1		
			8							
			9		US	Y			VU_MW04_8.8	Target depth achieved
End of Log			9					2		
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>7.418</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.406</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>11.098</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364553.48</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330074.71</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sandy Gravel</b> Brown, dry, loose, non-plastic, poorly sorted gravel (5-25mm), no odour, no staining.			0					0		
<b>Sandy Clay</b> Orange and brown, dry, loose, low plasticity, some gravel (<5mm), sub-rounded, no odour, no staining.			0.5		DS	Y		0	VU_MW05_0.5	
			1					0		
			2					0.5		
<b>Gravelly Sand</b> Yellow brown banded light red and light grey, dry, dense, fine grained sand, fine medium gravel, angular to sub-angular, moderately weathered, moist from 4.5 m bgs, no odour, no staining.			2.7		US	Y		1.1	VU_MW05_2.7	
			3					1.6		
			4					2		
			5					1		
			6					2.8		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW05**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>7.418</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>10.406</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>11.098</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364553.48</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6330074.71</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					1.1		
			8							
			9							
			10							Target depth achieved
End of Log			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **19/03/2014** Total Depth (m): **10** Final Water Level (m bgl): **5.37**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **9.552**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **9.462**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **364614.66**  
 Drill Method: **NDD/PT/SFA/HSA** Surface Completion: **Monument** Northing (MGA): **6329934.79**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **8**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Roadbase			0					0.1		
<b>Sandstone</b> Weathered, orange with white mottled, moist, loose, non-plastic, fine grained, no odour, no staining.			0		DS	Y		0.1	VU_MW06_0.5	
<b>Sandy Clay</b> Dark yellow, moist, loose, low plasticity, fine grained, well sorted, no odour, no staining.			1					0		
<b>Sandy Clay</b> Gravelly, light grey with red-brown mottled, moist, firm, fine grained sand, fine medium grained gravel, highly weathered gravel (iron oxide staining), rounded to sub-rounded, no odour, no staining.			2					1.6		
<b>Sandy Clay</b> Gravelly, light grey, moist, hard, non-plastic, fine grained sand, sub-rounded to sub-angular, no odour, no staining.			2					1.6		
<b>Gravelly Sand</b> Interceded Gravelly Sandy Clay and Clayey Gravelly Sand, orange-brown, moist, loose, non-plastic, fine grained, weathered gravel, no odour, no staining.			3					1		
<b>Gravelly Clay</b> Sandy, orange-brown, moist, firm, fine grained sand, wet from 8.0 m bgs, no odour, no staining.			4					2.8		
			5					3.8		
			6					1.7		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

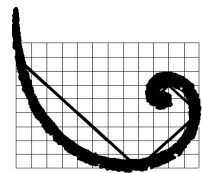
Log By: **DB**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW06**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>10</b>	Final Water Level (m bgl): <b>5.37</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>9.552</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>9.462</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364614.66</b>
Drill Method: <b>NDD/PT/SFA/HSA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329934.79</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>8</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					2.2		
			8					2.7		
			9							
			10							
End of Log			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>8.5</b>	Final Water Level (m bgl): <b>6.534</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.908</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>15.754</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364507.7</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329821.83</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Asphalt</b> Good condition, no odour, no staining.			0					0		
<b>Sandy Gravel</b> Light brown, slightly moist, loose, non-plastic, poorly sorted, 5 - 50mm, sub-rounded, no odour, no staining.			0		DS	Y		0	VU_MW07_0.5	
<b>Sandy Clay</b> Orange, moist, loose, low plasticity, fine sand, well sorted, some gravel inclusions (<2mm), change to light orange with red mottle at 1.4m bgs, no odour, no staining.			1					0		
<b>Gravelly Sand</b> Clayey, light grey, red brown mottling, moist, dense, non-plastic, fine sand, highly weathered gravel, fine to medium grained gravel, rounded to angular, no odour, iron staining present.			2					2.2		
<b>Gravelly Sand</b> Clayey, light grey, red brown mottling, moist, dense, non-plastic, fine sand, highly weathered gravel, fine to medium grained gravel, rounded to angular, very hard from 7.5m bgs, wet from 7.5m bgs, no odour, no staining.			3		US	Y		1.6	VU_MW07_2.5	
			4					0.7		
			5					1.8		
			6					1.6		

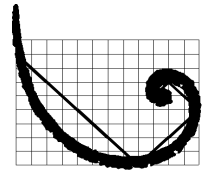
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VU\_MW07**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>19/03/2014</b>	Total Depth (m): <b>8.5</b>	Final Water Level (m bgl): <b>6.534</b>
Drill Finish Date: <b>24/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>14.908</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>15.754</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364507.7</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329821.83</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>7.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
End of Log			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/KB**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **13.5** Final Water Level (m bgl): **9.734**  
 Drill Finish Date: **20/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **23.475**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **24.151**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364022.97**  
 Drill Method: **NDD/PT/SFA/AH** Surface Completion: **Monument** Northing (MGA): **6328949.24**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **11.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Brown, moist, medium dense, fine grained sand, coarse grained gravel, moderately sorted, rounded, homogenous, plant roots throughout, no odour, no staining.			0		DS	Y		0	VU_MW08_0.5	
<b>Sandy Clay</b> With traces of gravel, brown with grey, moist, stiff, low plasticity, homogenous, red-brown and grey from 0.8 m bgs, no odour, no staining.			1					0		
<b>Clay</b> Grey, moist, medium stiff, high plasticity, homogenous, no odour, no staining.			2		DS	Y		0	VU_MW08_1.5	
<b>Clay</b> Light grey mottled orange-brown, layers of highly weathered gravel present, orange-brown, sub-rounded to sub-angular, fine up to 10mm.			3					0.5		
			4		US	Y		7.6	VU_MW08_3.8	
			5					2.6		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Page 1 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>13.5</b>	Final Water Level (m bgl): <b>9.734</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>23.475</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>24.151</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364022.97</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328949.24</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
<b>Conglomerate</b> Predominantly light grey, sub-rounded gravel, chert, ironstone and siltstone (3-10mm), silty sand matrix, moderately weathered, no odour, no staining.			8							
<b>Conglomerate</b> Predominantly light grey, moist, sub-angular gravel fragments, chert, ironstone and silty sandstone (2-3mm), silty sand matrix, moderately weathered, no odour, no staining.			9							
			10							
<b>Conglomerate</b> Predominantly light grey, wet, sub-angular gravel fragments, chert, ironstone and silty sandstone (2-3mm), silty sand matrix, moderately weathered, no odour, no staining.			11							
			12							

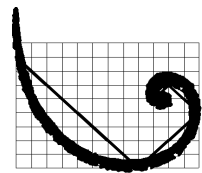
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW08**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>13.5</b>	Final Water Level (m bgl): <b>9.734</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>23.475</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>24.151</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364022.97</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328949.24</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>11.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			13							Target depth achieved
End of Log			14							
			15							
			16							
			17							
			18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Page **3 of 3**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>15</b>	Final Water Level (m bgl): <b>7.124</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.799</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>22.475</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364273.43</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329231.2</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> With gravel, dark brown, moist, loose, fine with some medium coarse grained gravel, well sorted, homogenous, light brown with orange-brown gravels from 0.1 m bgs, no odour, no staining.			0		DS	Y		0	VU_MW09_0.2	
<b>Sandy Clay</b> With gravel, orange-brown, moist, medium stiff, low plasticity, brown with grey from 0.9 m bgs, homogenous, no odour, no staining.			1					0		
<b>Clayey Sand</b> With gravel, brown with grey, moist, medium dense, fine coarse grained sand, fine medium coarse grained gravel, sub-rounded, homogenous, no odour, no staining.			2					0		
<b>Gravelly Sand</b> With some silt, orange-brown, moist, loose, fine medium grained sand, highly weathered gravel, fine coarse, angular to sub-angular gravel, homogenous, no odour, no staining.			3					2.6		
			4					4.6		
			4		US	Y		12.2	VU_MW09_3.9	
			5					22.3		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Page 1 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>15</b>	Final Water Level (m bgl): <b>7.124</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.799</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>22.475</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364273.43</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329231.2</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Conglomerate</b> Predominantly light grey, slight moist, sub-angular gravel fragments, chert, ironstone and silty sandstone (2-4mm), silty sand matrix, moderately weathered, moist from 10.5 m bgs, no odour, no staining.			7 8 9 10 11 12							

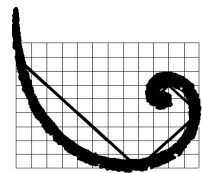
**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW09**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>18/03/2014</b>	Total Depth (m): <b>15</b>	Final Water Level (m bgl): <b>7.124</b>
Drill Finish Date: <b>20/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.799</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>22.475</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364273.43</b>
Drill Method: <b>NDD/PT/SFA/AH</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329231.2</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Siltstone</b> Sandy, grey, moist, moderately weathered, no odour, no staining.			13							
<b>Conglomerate</b> Predominantly light grey, slight moist, sub-angular gravel fragments, chert, ironstone and silty sandstone (2-3mm), silty sand matrix, slightly weathered, no odour, no staining.			14							
End of Log			15							Target depth exceeded. Bore hole backfilled from 12 - 15m. Well installed at 12.0m
			16							
			17							
			18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/WG**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW10**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **5.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Wade Manger** Casing Diam. (mm): **NA** Easting (MGA): **364696.9**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Backfilled** Northing (MGA): **6328368.23**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Sand</b> Greyish brown, damp, medium dense, fine grained size, well sorted, homogenous, no odour, no staining.			0					0		
<b>Gravelly Sand</b> Brown, moist, medium stiff, medium dense, fine sand-medium coarse gravel, moderately sorted, rounded gravels, homogenous.			0.4					0		
<b>Clay</b> Orange brown, moist, medium stiff, medium plasticity, homogenous, grey with reddish brown from 0.9 m bgs, minor gravel inclusions from 1.3 m bgs, no odour, no staining.			1	■	DS	Y		0	VU_MW10_1.0	
<b>Gravelly Clay</b> Reddish brown with grey, moist, medium stiff, low plasticity, homogenous, no odour, no staining.			1.3					0.4		
<b>Clayey Sand</b> Light grey, moist, dense, low plasticity, fine grained sand, sub-angular gravels, slightly weathered, no odour, no staining.			2	■	US	Y		0.8	VU_MW10_2.2	
<b>Gravelly Sand</b> Orangey brown, moist, loose, fine to medium grained sand, fine to coarse size gravels, poorly sorted, rare rounded pebbles of all sorted sizes, highly weathered (iron oxide), grading to grey from 4.5 m bgs, no odour, no staining.			3					1.2		
			4					0.6		
			5							
			5.5	■	US	Y		3.8	VU_MW10_5.5	
End of Log			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP/KB/SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW11**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>31/03/2014</b>	Total Depth (m): <b>0.1</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>31/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>ERM</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Gavin Powell</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364584</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6328077</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Brown, moist, medium dense, fine grained, well sorted, homogenous, no odour, no staining.  End of Log			0					0	VU_MW11_0.1	Shallow soil bore only. Area was heavily forested and not possible to access with vehicles
			1							
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **GP**

Checked By: **KD**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW12**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **24/03/2014** Total Depth (m): **7** Final Water Level (m bgl): **2.578**  
 Drill Finish Date: **25/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **4.035**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **3.847**  
 Driller: **Justin Collyer** Casing Diam. (mm): **50** Easting (MGA): **365154.31**  
 Drill Method: **NDD/PT/SSA** Surface Completion: **Gatic** Northing (MGA): **6329238.96**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **5.5**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Dark brown, dry, loose, well sorted, homogenous, loamy, no odour, no staining.			0					0.5		
<b>Clayey Sand</b> Light brown, dry, loose, increase in clay content, becoming more consolidated from 0.1m bgs, no odour, no staining.			1		DS	Y		0.6	VU_MW12_1.0	
<b>Sandy Clay</b> Orange brown, moist, consolidated, medium plasticity, cohesive, no odour, no staining.			1					0		
<b>Sandy Clay</b> With gravels, grey with orange mottling, dry, stiff, consolidated, medium plasticity, rootlets present throughout.			2					0.7		
<b>Sandy Clay</b> Gravelly, gravel is completely weathered, orange red brown, moist, loose, sand is fine to coarse, non-plastic, iron staining.			3					1		
<b>Silty Sand</b> With minor gravel, light grey, moist, dense, non-plastic, fine, gravel is fine to medium, sub-angular, slightly weathered, no odour, no staining.			3		US	Y		1.5	VU_MW12_3.2	
<b>Sand</b> Orange brown, moist, loose, fine to medium, no odour, no staining.			4							
<b>Gravelly Sand</b> Silty, yellow brown with light grey mottling, wet, dense, sand is fine to coarse, non-plastic gravel is fine to medium, sub-rounded to sub-angular, moderately weathered (weathered conglomerate?), soft from 5.5m bgs and saturated.			4		US	Y		1.9	VU_MW12_4.1	
			5					2.1		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

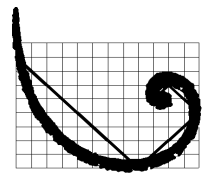
Log By: **SB/JE**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VU\_MW12**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>24/03/2014</b>	Total Depth (m): <b>7</b>	Final Water Level (m bgl): <b>2.578</b>
Drill Finish Date: <b>25/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>4.035</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>3.847</b>
Driller: <b>Justin Collyer</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>365154.31</b>
Drill Method: <b>NDD/PT/SSA</b>	Surface Completion: <b>Gatic</b>	Northing (MGA): <b>6329238.96</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/JE**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW13**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **11** Final Water Level (m bgl): **7.826**  
 Drill Finish Date: **26/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.455**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **19.164**  
 Driller: **Wade Manger** Casing Diam. (mm): **50** Easting (MGA): **364433.15**  
 Drill Method: **NDD/PT/SFA/AB** Surface Completion: **Monument** Northing (MGA): **6329651.61**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **Not observed**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Roadbase			0		DS	Y		0	VU_MW13_0.2	
<b>Clayey Sand</b> With gravels, yellow brown, moist from NDD, loose, poorly sorted gravels (2mm-70mm), sub-rounded, non-cohesive, gravels becoming well-sorted and rare from 0.5m bgs.			1		DS	Y		0	VU_MW13_1.0	
<b>Sandy Clay</b> Orange, moist, loose, low plasticity, homogenous, no odour, no staining.			2					0.8		
<b>Sandy Clay</b> With angular gravels, wet from NDD, orange with red mottling, low plasticity due to presence of gravels, no odour, no staining.			3					0.2		
<b>Sand</b> With some gravels and silt, gravel is completely weathered, light grey, red brown mottling (ironstone), moist, dense, non-plastic, no odour, no staining.			3.3		US	Y		1.4	VU_MW13_3.3	
<b>Sand</b> With some gravels and silt, gravel slightly weathered, light grey, moist, dense, fine to medium grained, angular, non-plastic, no odour, no staining.			4					1.2		
			5					0.9		
			6					1.6		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/KB**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW13**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>20/03/2014</b>	Total Depth (m): <b>11</b>	Final Water Level (m bgl): <b>7.826</b>
Drill Finish Date: <b>26/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.455</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>19.164</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364433.15</b>
Drill Method: <b>NDD/PT/SFA/AB</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329651.61</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7					3.3		
<b>Sandy Gravel</b> Light brown, damp, very dense, very tightly packed, coarse grained, sub-angular gravel inclusions (<2cm), at 10m bgs - trace clay, grey, damp, low plasticity, at 10.5m bgs - moist, no odour, no staining.			8							
			9							
			10							
			11							Target depth achieved
End of Log			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB/KB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW14**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/03/2014** Total Depth (m): **12** Final Water Level (m bgl): **8.443**  
 Drill Finish Date: **21/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **21.882**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **22.574**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **364254.08**  
 Drill Method: **NDD/PT/AN** Surface Completion: **Monument** Northing (MGA): **6329372.21**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **Not observed**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Orange-brown, damp, medium dense, fine grained sand, coarse grained gravel, sub-rounded, homogenous, grey and red-brown gravel, no odour, no staining.			0					0		
<b>Gravelly Sand</b> Clayey, brown, moist, medium dense, fine grained sand, coarse grained gravel, sub-rounded, homogenous, grey and red-brown gravel, some grey and orange-brown clay from 0.5 m bgs, no odour, no staining.			1		US	Y		0	VU_MW14_1.0	
<b>Sandy Clay</b> Red-brown with orange-brown and grey, moist, medium stiff, low plasticity, homogenous, orange-brown and grey increasing with depth, no odour, no staining.			2					0		
<b>Silty Sand</b> With minor gravel, light grey to red brown, moist, dense, sub-angular, 3-5mm, no odour, no staining.			3					0.1		
								0.1		
								0.1		
					DS	Y		0.1	VU_MW14_3.3-3.7	
<b>Conglomerate</b> Light grey to red brown, moist, sub-angular to sub-rounded gravel (quartz, chert), 3-10mm, silty sand matrix, moderately weathered, no odour, no staining.			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

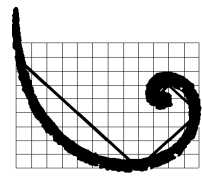
Log By: **GP/WG**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VU\_MW14**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>20/03/2014</b>	Total Depth (m): <b>12</b>	Final Water Level (m bgl): <b>8.443</b>
Drill Finish Date: <b>21/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>21.882</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>22.574</b>
Driller: <b>Matt Moroney</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>364254.08</b>
Drill Method: <b>NDD/PT/AN</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6329372.21</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8							
			9							
			10							
			11							
			12							Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

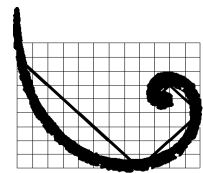
Log By: **GP/WG**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW15**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **18/03/2014** Total Depth (m): **6** Final Water Level (m bgl): **2.39**  
 Drill Finish Date: **24/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **10.447**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **11.097**  
 Driller: **Matt Moroney** Casing Diam. (mm): **50** Easting (MGA): **363763.2**  
 Drill Method: **NDD/PT** Surface Completion: **Monument** Northing (MGA): **6330164.4**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **4**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sand, light brown, dry, very loose, fine grained, well sorted, homogenous, no odour, no staining, some rootlets.			0					0		
<b>Fill</b> Clayey sand with traces of gravel, lightly brown, dry, very loose, fine grained, well sorted, rounded, no odour, no staining.			1					0		
<b>Sandy Clay</b> Orange brown, moist, very soft, low plasticity, fine sand (<30%), no odour, no staining.			2					0.1		
<b>Sandy Clay</b> Red brown with light grey mottling, moist, very soft, low plasticity, fine sand (<20%), no odour, no staining.			3					0		
<b>Gravelly clay</b> Sandy, brown orange with grey mottling, damp, soft, low plasticity, heterogeneous, minor gravel inclusions, moist at 4m bgs, saturated at 5m bgs, no odour, no staining.			4		US	Y		0.1	VU_MW15_4.0	
			5					0		
			6					0		Target depth achieved

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/CM**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW16**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **10/03/2014** Total Depth (m): **9.5** Final Water Level (m bgl): **3.275**  
 Drill Finish Date: **10/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **18.945**  
 Drill Co: **Numac** Casing Type: **UPVC** Elevation (Case): **19.69**  
 Driller: **Rohan Harding** Casing Diam. (mm): **50** Easting (MGA): **362691.92**  
 Drill Method: **NDD/PT/SFA** Surface Completion: **Monument** Northing (MGA): **6326528.31**  
 Hole Type: **Monitoring well** Water Strike (m bgl): **Not observed**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks	
Ground Surface			0								
<b>Sandy Gravel</b> Light brown/grey, dry, very loose, coarse grained gravel, poorly sorted, rounded gravel inclusions (<5cm), no odour, no staining.  <b>Clayey Sand</b> Light brown, dry, loose, medium coarse grained, moderately sorted, sub-angular, brown and damp at 0.5 m bgs, no odour, no staining.			0					1.6			
			2.4	■	DS	Y			2.4	VU_MW16_0.5	
<b>Sand</b> Light grey, dry, loose, fine grained, well sorted, sub-angular, orange mottling at 2.4 m bgs, no odour, no staining.			1					1.8			
			2	■	US	Y			0.9	1	VU_MW16_2.0
<b>Clay</b> Light grey, orange mottling, dry, stiff, non-plastic, homogenous, damp at 4.1 m bgs, very stiff at 5.5 m bgs, brown mottling at 6.0 m bgs, moist at 6.5 m bgs, no odour, no staining.			3					0.7			
			4						1.4		
			5						1.5		
			6					2.2			

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 1 of 2



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VU\_MW16**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>10/03/2014</b>	Total Depth (m): <b>9.5</b>	Final Water Level (m bgl): <b>3.275</b>
Drill Finish Date: <b>10/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>18.945</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>19.69</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>362691.92</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6326528.31</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7							
			8					0		
			9							
										Target depth achieved
End of Log			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW17**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>3/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>2.709</b>
Drill Finish Date: <b>5/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>34.758</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>35.629</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361848.78</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6326327.75</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Medium brown, dry, loose, fine grained sand, well sorted, some rootlets present, no odour, no staining.			0					0		
<b>Sandy Clay</b> Light brown with red and orange mottling (oxidation), moist, very soft, high plasticity, (<30%) fine grained sand, no odour, no staining.			0		DS	Y		0	VU_MW17_0.5	
<b>Clay</b> Light brownish to white with red oxidised mottling, moist, medium stiff, high plasticity, changes to brown to white with no oxidised mottling, dry and low plasticity from 1.2 m bgs, no odour, no staining.			1					0		
<b>Clayey Sand</b> Light grey, dry to moist, hard, non plasticity, well sorted, homogenous, consolidated into fragments and increasing sand content from 1.7 m bgs, no odour, no staining.			2					0.5 1.9		
<b>Sandy Clay</b> Grey and orangey yellow, moist, medium plasticity, some weathered siltstone fragments (grey when broken), no odour, no staining.			3					0.2		
<b>Sandy Clay</b> Grey, dry, non plasticity, some weathered siltstone fragments throughout, homogenous, grading to orange from 4.0 m bgs, hard bed-rock layer at 5.0 m bgs, no odour, no staining.			4					0.3		
			5					0.2		
<b>Gravelly Sandy Clay</b> Brown, moist, low plasticity, saturated from 6.4 m bgs, no odour, no staining.			6					0.4		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Page 1 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW17**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>3/03/2014</b>	Total Depth (m): <b>7.5</b>	Final Water Level (m bgl): <b>2.709</b>
Drill Finish Date: <b>5/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>34.758</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>35.629</b>
Driller: <b>Wade Manger</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>361848.78</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6326327.75</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>5.5</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			7		US	Y		0.2	VU_MW17_6.5	
			7.5							Target depth achieved
End of Log			8							
			9							
			10							
			11							
			12							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP/SB**

Checked By: **KD**

Page 2 of 2

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW18**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **3/03/2014** Total Depth (m): **1.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **3/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Jeff Black** Casing Diam. (mm): **NA** Easting (MGA): **360556**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6326356**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Clayey Sand</b> Brown, dry, very loose, fine to medium grained size, poorly sorted, rootlets throughout, no odour, no staining.					DS	Y		0	VU_MW16_0.5	Bore hole was not advanced beyond 1.5m. Location was within a gas pipeline easement and restrictions imposed by the gas provider meant drilling with a drill rig was not possible
<b>Sandy Clay</b> Orangey brown, dry, very soft, medium plasticity, (~30%) fine grained sand, no odour, no staining.										
<b>Clay</b> Light tan to white with red (oxidised) mottling, moist, very soft, high plasticity, (<120 mm) rocks/ballast from 0.7 m bgs, organic matter with shale and some black staining from 0.8 m to 0.9 m bgs, no odour, no staining.			1		DS	Y	0.2	0	VU_MW18_0.9	
					DS	Y		0	VU_MW18_1.0	
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **RP**  
 Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW19**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **5/03/2014** Total Depth (m): **1.37** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **5/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Jeff Black** Casing Diam. (mm): **NA** Easting (MGA): **359873.61**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6326709.77**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Clayey Sand</b> Dark brown with orange oxidised clay chumps, moist, loose, soft, high plasticity, medium size and rounded gravels, well sorted, (<30%) clay content.			0					0		
<b>Sandy Clay</b> Greenish brown, moist, very soft, high plasticity, (<20%) fine grained sand, manure-like organic odour, no staining.			0.2		DS	Y		0.2	VU_MW19_0.5	
<b>Clayey Sand</b> Light brown, moist, soft to medium dense, high plasticity, (40%) clay content, light grey mottling from 1.0 m bgs, slight organic odour, no staining.			1					0.4		Bore hole was not advanced beyond 1.37m. Location was within gas pipeline easement, and restrictions from gas provider prevented drilling using a drill rig.
<b>Sandstone</b> Light grey, weathered, no odour, no staining.			2							
End of Log			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

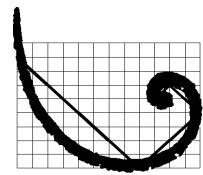
Log By: **RP**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW20**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>13</b>	Final Water Level (m bgl): <b>12.412</b>
Drill Finish Date: <b>3/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>27.599</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>28.187</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359836.95</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328129.58</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Silty Sand</b> Light brown, damp, very loose, medium coarse grained, moderately sorted, sub-angular, organic matter (grass and roots) present, no odour, no staining.			0		DS	Y		1.6	VU_MW20_0.1	
			0.3		DS	Y		0.3	VU_MW20_0.5	
<b>Sandy Clay</b> Light brown, red/orange mottling, moist, soft, medium plasticity, homogenous, very light brown/white, sandstone inclusions (<5cm) at 0.75 m bgs, high plasticity at 1.0 m bgs, dark brown and low plasticity at 1.4 m bgs, no odour, no staining.			1					0.2		
			0.6					0.6		
<b>Clay</b> Light brown, dry, medium stiff, non-plastic, heterogeneous, no odour, no staining.			2					0.3		
			3					0		
<b>Clayey Sand</b> Gravelly, brown with orange/red mottling, dry, medium dense, medium coarse grained, moderately sorted, sub-rounded gravel, pale white/brown mottling at 3.5 m bgs, orange mottling at 5.3 m bgs, no odour, no staining.			4					0		
			5					0		
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

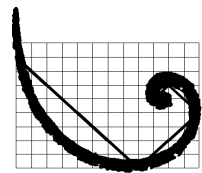
Log By: **CM**

Checked By: **KD**

Page 1 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_MW20**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>13</b>	Final Water Level (m bgl): <b>12.412</b>
Drill Finish Date: <b>3/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>27.599</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>28.187</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359836.95</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328129.58</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
<b>Clay</b> Light brown/white, dry, hard, non-plastic, homogenous, light brown at 8.0 m bgs, no odour, no staining.			7					0		
			8					0		
			9		US	Y		0	VU_MW20_9.0	
<b>Sandy Clay</b> Light brown, slight damp, soft, low plasticity, homogenous, no odour, no staining.			10					0		
			11					0		
			12					0		

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

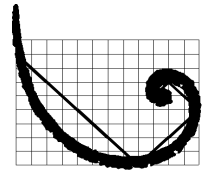
Log By: **CM**

Checked By: **KD**

Page 2 of 3

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

**ID: VU\_MW20**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>26/02/2014</b>	Total Depth (m): <b>13</b>	Final Water Level (m bgl): <b>12.412</b>
Drill Finish Date: <b>3/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>27.599</b>
Drill Co: <b>Numac</b>	Casing Type: <b>UPVC</b>	Elevation (Case): <b>28.187</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>50</b>	Easting (MGA): <b>359836.95</b>
Drill Method: <b>NDD/PT/SFA</b>	Surface Completion: <b>Monument</b>	Northing (MGA): <b>6328129.58</b>
Hole Type: <b>Monitoring well</b>	Water Strike (m bgl): <b>Not observed</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
			13							Target depth achieved
End of Log			14							
			15							
			16							
			17							
			18							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **CM**

Checked By: **KD**

Page **3** of **3**



Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_SB01**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: <b>11/03/2014</b>	Total Depth (m): <b>0.4</b>	Final Water Level (m bgl): <b>NA</b>
Drill Finish Date: <b>11/03/2014</b>	Hole Diam. / Width (mm): <b>150</b>	Elevation (Ground): <b>NA</b>
Drill Co: <b>Numac</b>	Casing Type: <b>NA</b>	Elevation (Case): <b>NA</b>
Driller: <b>Rohan Harding</b>	Casing Diam. (mm): <b>NA</b>	Easting (MGA): <b>364544.17</b>
Drill Method: <b>NDD</b>	Surface Completion: <b>Backfilled</b>	Northing (MGA): <b>6330132.37</b>
Hole Type: <b>Soil bore</b>	Water Strike (m bgl): <b>NA</b>	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Fill</b> Sandy gravel, grey, poorly sorted, 5mm, encountered 3 large fractured pieces of suspected asbestos sheet at 0.4m bgs (100-200mm)								0.1		
End of Log			1							Suspected ACM encountered at 0.4m. Sample of material collected. Location abandoned due to OH&S concerns
			2							
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB**

Checked By: **KD**

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_SB02**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **20/04/2014** Total Depth (m): **1.5** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **20/04/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Aiden** Casing Diam. (mm): **NA** Easting (MGA): **364158.18**  
 Drill Method: **NDD** Surface Completion: **Backfilled** Northing (MGA): **6328812.04**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Topsoil</b> Sandy clayey gravel, grey, moist, loose, non-cohesive, rootlets throughout, no odour, no staining.			0	■	DS	Y		0	VU_SB02_0.2	
<b>Clayey Gravel</b> Yellowish brown, wet from NDD, non-cohesive, angular to sub-rounded gravels, poorly sorted, heterogeneous, no odour, no staining.			0.5					0		
<b>Sandy Clay</b> Grey with red mottles, moist, medium plasticity, cohesive, homogenous, no odour, no staining.			1	■	DS	Y		0	VU_SB02_1.0	
<b>Clayey Sand</b> Grey with red mottles, moist, loose, non-cohesive/plasticity, well sorted, homogenous, no odour, no staining.			1.5					0		
End of Log			2							Soil bore was not advanced beyond 1.5m due to wet weather making access impossible
			3							
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **SB**

Checked By: **KD**

Page 1 of 1

Client: **Delta Electricity**  
 Project No.: **0237747**  
 Project Name: **Project Symphony**  
 Site Name: **Vales Point Power Station**  
 Site Address: **Vales Road, Mannering Park, NSW 2359**

ID: **VU\_SB03**



**ERM**

**ERM Australia Pty Ltd**

Drill Start Date: **11/03/2014** Total Depth (m): **3** Final Water Level (m bgl): **NA**  
 Drill Finish Date: **14/03/2014** Hole Diam. / Width (mm): **150** Elevation (Ground): **NA**  
 Drill Co: **Numac** Casing Type: **NA** Elevation (Case): **NA**  
 Driller: **Rohan Harding** Casing Diam. (mm): **NA** Easting (MGA): **364448.48**  
 Drill Method: **NDD/PT** Surface Completion: **Backfilled** Northing (MGA): **6330151.78**  
 Hole Type: **Soil bore** Water Strike (m bgl): **NA**

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
<b>Gravelly Sand</b> Light brown, medium dense, dry, fine to medium coarse, well sorted, gravels sub rounded 10-20mm, no odour, no staining  <b>Gravelly Clay</b> Brown, mottled red and orange, medium plastic. medium dense, moist, gravels poorly sorted, 10-15mm, sub rounded.			0					0.1		
				■	DS	Y		0	VU_SB03_0.5	
<b>Gravelly Sandy Clay</b> Grey, moist, low plasticity, non-cohesive, sand medium coarse, well sorted gravels. Becoming saturated at 1.6m bgs, colour change to dark brown at 2.2 m bgs.			1					0		
			2	■	US	Y		0	VU_SB03_2.0	
End of Log			3							Target depth achieved
			4							
			5							
			6							

**NOTE:** This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: **DB/CM**

Checked By: **KD**

Annex E

## Field Documentation

## Oil / Water Interface Meter

---

Instrument      Geotech Interface Meter (30M)  
 Serial No.      3877



**airmet**

Air-Met Scientific Pty Ltd  
 1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

### Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by:

Sophie Bolter

Calibration date:

26/02/2014

Next calibration due:

27/04/2014



## PID Calibration Certificate

Instrument      PhoCheck Tiger  
Serial No.      T-106368



Air-Met Scientific Pty Ltd  
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY21	101.9 ppm

Calibrated by:

Jacob Arnott

Calibration date:

7/03/2014

Next calibration due:

6/04/2014

## Multi Parameter Water Meter



**airmet**

Air-Met Scientific Pty Ltd  
1300 137 067

Instrument YSI Quatro Pro Plus  
Serial No. 09K100887

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		LE1048	pH 7.00
2. pH 10.00		pH 10.00		LF1239	pH 9.95
2. pH 4.00		pH 4.00		LD1784	pH 4.06
3. mV		228.5mV		KH1997/KH1995	228.3mV
4. EC		2.76mS		LC2147	2.76mS
6. D.O		0ppm		939	0.00ppm
7. Temp		22.5°C		MultiTherm	22.5°C

Calibrated by:

Sophie Boler

Calibration date:

20/03/2014

Next calibration due:

16/09/2014





## Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus  
Serial No. 11C100752



**airmet**

Air-Met Scientific Pty Ltd  
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. Specific conductance	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		LF1239	pH 9.91
2. pH 7.00		pH 7.00		LE1048	pH 7.01
3. pH 4.00		pH 4.00		LD1784	pH 4.02
4. mV		228.5mV		KH1997/KH1995	228.5mV
5. EC		2.76mS		LC2147	2.76mS
6. D.O		0ppm		939	0.00ppm
7. Temp		22.5°C		MultiTherm	22.7°C

Calibrated by:

*Sb.*

Sophie Boler

Calibration date:

24/03/2014

Next calibration due:

23/04/2014

## Multi Parameter Water Meter



**airmet**

Air-Met Scientific Pty Ltd  
1300 137 067

Instrument YSI Quatro Pro Plus  
Serial No. 11K101268

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		LF1239	pH 9.87
2. pH 7.00		pH 7.00		LE1048	pH 7.02
3. pH 4.00		pH 4.00		LD1784	pH 4.05
4. mV		227.4mV		KH1997/KH1995	227.3mV
5. EC		2.76 mS		LC2147	2.76mS
6. D.O		0 ppm		939	0.00ppm
7. Temp		23.0°C		MultiTherm	23.2°C

Calibrated by:

*SB*

Sophie Boler

Calibration date:

24/03/2014

Next calibration due:

20/09/2014

# RENTALS

## 0Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	7.00H / pH 4.00	7.00 pH	4.00 pH	/	<input checked="" type="checkbox"/>
Conductivity	2.76mS/cm	6.00 mS/cm	2.76 mS/cm		<input checked="" type="checkbox"/>
TDS	36 ppk	0.0 ppk	36.0 ppk		<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.00 ppm in Sodium Sulphite	8.74 ppm Saturation in Air		<input checked="" type="checkbox"/>

**Check only**

Redox (ORP) *	Electrode operability test	240mV +/- 10%	236 mV		<input checked="" type="checkbox"/>
---------------	----------------------------	---------------	--------	--	-------------------------------------

\* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

- Battery Status 7.2 (min 7.2V)  Temperature 21.8 °C  
 Electrical Safety Tag attached (AS/NZS 3760)  Electrodes Cleaned and checked

Tag No: TFR025

Valid to: 30 Sept 2014

Date: 31/03/2014

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	90FLMV Unit. Ops check/Battery status: <u>7.4</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	pH sensor with wetting cap, 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conductivity/TDS/Temperature K=10 sensor, 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Redox (ORP) sensor with wetting cap, 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Power supply 240V to 12V DC 200mA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instruction Manual
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Syringe with storage solution for pH and ORP sensors
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Date: 31/03/2014

Signed: [Signature]

TFS Reference	<u>CS000453</u>	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	<u>90FLMVBL</u>	Condition on return:	
Equipment Serial No.	<u>T7934</u>		

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Fax: (Free Call) 1800 675 123		Email: <a href="mailto:RentalsAU@Thermofisher.com">RentalsAU@Thermofisher.com</a>	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstead 4006	Perth Branch 121 Beeringarra Ave Malaga WA 6090	

## PID Calibration Certificate

Instrument **PhoCheck Tiger**  
Serial No. **T-105859**



Air-Met Scientific Pty Ltd  
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY21	99.8ppm

Calibrated by:  Joanna Wong

Calibration date: 20/03/2014

Next calibration due: 19/04/2014

## PID Calibration Certificate

Instrument      MiniRae 3000  
Serial No.      592-902462



Air-Met Scientific Pty Ltd  
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm	10ppm	25ppm
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode      Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp	592-902462	100ppm Isobutylene	NIST	SY21	100.4 ppm

Calibrated by:  Jacob Arnott

Calibration date: 7/03/2014

Next calibration due: 6/04/2014

**PID Calibration Certificate**



Instrument      PhoCheck Tiger  
 Serial No.      T-105422

Air-Met Scientific Pty Ltd  
 1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

**Certificate of Calibration**

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode      Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp		100ppm Isobutylene	NATA	SY21	100ppm Isobutylene

**Calibrated by:**  Jacob Arnott

**Calibration date:** 7/03/2014

**Next calibration due:** 6/04/2014

## PID Calibration Certificate

Instrument      PhoCheck Tiger  
Serial No.      T-105423



Air-Met Scientific Pty Ltd  
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm	N/A	N/A
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY21	99.7ppm

Calibrated by:  Jacob Arnott

Calibration date: 7/03/2014

Next calibration due: 6/04/2014





ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="R. Pascoe"/>	Date:	<input type="text" value="27-2-14"/>
------------	--	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="RP"/>	Date:	<input type="text" value="3.3.14"/>
------------	---------------------------------	-------	-------------------------------------



**ERM**

**Environmental Resources Management Australia Pty Ltd**

*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="R. Pascoe"/>	Date:	<input type="text" value="4.3.14"/>
------------	--	-------	-------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S.B"/>	Date:	<input type="text" value="5.3.14"/>
------------	----------------------------------	-------	-------------------------------------



**ERM**

**Environmental Resources Management Australia Pty Ltd**

*PID Calibration Certificate*

Project Name :

Symphony IV

Project Staff :

R. Pascoe

Project No :

1090 0237747

Date :

5.3.14

**Photo-ionisation Detector**

Make/Model No:

Mini RAE 3000

Serial Number:

592-902419

**Calibration Gas**

Calibration Gas:

Isobutylene

**PID Calibration**

Zero Calibration

PID Reading:

0.00

Span Calibration

Desired PID Reading:

100.0

Actual PID Reading:

100.0

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

R. Pascoe

Signature:		Date:	5.3.14
------------	--	-------	--------



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Cavin Powell"/>	Date:	<input type="text" value="7/3/14"/>
------------	---	-------	-------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Cavin Powell"/>	Date:	<input type="text" value="10/3/14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Brookes"/>	Date:	<input type="text" value="11-3-14"/>
------------	---	-------	--------------------------------------





**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value=""/>	<input type="text" value=""/>	Date:	<input type="text" value="11/3/14"/>
------------	-------------------------------	-------------------------------	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Brookes"/>	Date:	<input type="text" value="12-3-14"/>
------------	---	-------	--------------------------------------



# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="12/3/14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Brookes"/>	Date:	<input type="text" value="13-3-14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="13/3/14"/>
------------	---	-------	--------------------------------------



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :

Symphony IV

Project Staff :

Katie Brisden

Project No :

0237747

Date :

14/03/2014

### Photo-ionisation Detector

Make/Model No:

Mini Rae 3000

Serial Number:

592902462

### Calibration Gas

Calibration Gas:

Isobutylene

### PID Calibration

#### Zero Calibration

0.0

PID Reading:

0.0

#### Span Calibration

Desired PID Reading:

100 ppm

Actual PID Reading:

100.5

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Katie Brisden

Signature:

Date:

14/03/2014



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="SB"/>	Date:	<input type="text" value="14-3-14"/>
------------	---------------------------------	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	14/3/14
------------	--	-------	---------





ERM

## Environmental Resources Management Australia Pty Ltd

### PID Calibration Certificate

Project Name :  Project Staff :

Project No :  Date :

#### Photo-ionisation Detector

Make/Model No:   
Serial Number:

#### Calibration Gas

Calibration Gas:

#### PID Calibration

##### Zero Calibration

PID Reading:

##### Span Calibration

Desired PID Reading:

Actual PID Reading:

#### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:			Date:	
------------	--	--	-------	--



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :

Symphony IV.

Project Staff :

Katie Bristow

Project No :

0237747

Date :

17/03/2014

### Photo-ionisation Detector

Make/Model No:

Mini Rae 3000

Serial Number:

SN: 592-902462

### Calibration Gas

Calibration Gas:

Isobutene

### PID Calibration

#### Zero Calibration

PID Reading:

0.0.

#### Span Calibration

Desired PID Reading:

Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Katie Bristow.

Signature:			Date:	
------------	--	--	-------	--



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

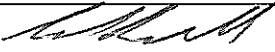
Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	17/3/14
------------	---	-------	---------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration  
PID Reading:   
Span Calibration  
Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	17/3/2014
------------	--	-------	-----------



# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="R. Pascoe"/>	Date:	<input type="text" value="17.3.14"/>
------------	--	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="18/3/14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Callbration Gas:

**PID Calibration**

Zero Callbration

PID Reading:

Span Callbration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Rose"/>	Date:	<input type="text" value="18.3.14"/>
------------	-----------------------------------	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="WJG"/>	Date:	<input type="text" value="18/3/2014"/>
------------	----------------------------------	-------	--





**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="19/03/2014"/>
------------	--	-------	---



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:


Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="19/3/2014"/>
------------	---	-------	--



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :

Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="19/3/14"/>
------------	---	-------	--------------------------------------



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :

Symphony IV

Project Staff :

Katie Brshaw

Project No :

0237747

Date :

20/03/2024

### Photo-ionisation Detector

Make/Model No:

AirPro Procheck Tiger

Serial Number:

T-105422

### Calibration Gas

Calibration Gas:

Isobutene

### PID Calibration

Bump test

### Zero Calibration

PID Reading:

### Span Calibration

Desired PID Reading:

100.00

Actual PID Reading:

101.00.

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	20/03/2024
------------	---	-------	------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Nuth"/>	Date:	<input type="text" value="20.03.14"/>
------------	--------------------------------------	-------	---------------------------------------



ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
 Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
 Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
 Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="20/3/2014"/>
------------	--	-------	--



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="SB"/>	Date:	<input type="text" value="20-3-14"/>
------------	---------------------------------	-------	--------------------------------------



# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="20/3/14"/>
------------	---	-------	--------------------------------------





ERM

# Environmental Resources Management Australia Pty Ltd

## PID Calibration Certificate

Project Name :  Project Staff :   
 Project No :  Date :

### Photo-ionisation Detector

Make/Model No:   
 Serial Number:

### Calibration Gas

Calibration Gas:

### PID Calibration

#### Zero Calibration

PID Reading:

#### Span Calibration

Desired PID Reading:   
 Actual PID Reading:

### Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	21/3/2014
------------	--	-------	-----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="21/03/2014"/>
------------	---	-------	---



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="21/3/14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	21.03.14
------------	--	-------	----------

24/3/14



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Nuth"/>	Date:	<input type="text" value="23.03.14"/>
------------	--------------------------------------	-------	---------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Kate Birstow"/>	Date:	<input type="text" value="24/03/2014"/>
------------	---	-------	---



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
 Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
 Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
 Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	24/3/14.
------------	--	-------	----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S. Brookes"/>	Date:	<input type="text" value="25-3-14"/>
------------	---	-------	--------------------------------------





**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="25/3/12"/>
------------	--	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	25.03.14
------------	--	-------	----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="S Brookes"/>	Date:	<input type="text" value="26-3-14"/>
------------	--	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Katie Bristow"/>	Date:	<input type="text" value="26/05/2014"/>
------------	--	-------	---



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	26-03-14
------------	--	-------	----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="Gavin Powell"/>	Date:	<input type="text" value="27/3/14"/>
------------	---	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :

Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	27.03.14
------------	--	-------	----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:			Date:	
------------	--	--	-------	--





**Environmental Resources Management Australia Pty Ltd**  
**PID Calibration Certificate**

Project Name : SYMPHONY Project Staff : S. NUTHALAPATI  
 Project No : 237747 Date : 28.03.14

**Photo-ionisation Detector**

Make/Model No: PCM 7320  
 Serial Number: 592-001386

**Calibration Gas**

Calibration Gas: ISOBUTANE

**PID Calibration**

Zero Calibration

PID Reading: 0.0 PPM

Span Calibration

Desired PID Reading: 100.0 PPM  
 Actual PID Reading: 102.6 PPM

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By: SURESH NUTHALAPATI

Signature:	<span style="border: 1px solid black; padding: 2px;">S. Nuth</span>	Date:	<span style="border: 1px solid black; padding: 2px;">28.03.14</span>
------------	---	-------	--

VJ - MW02 } NOVOC      ultra trace metal & PAH, VOC on hold  
 VS - MW09 }  
 VS - MW10 }  
 VK - MW03 }  
 VK - 04 } VOC (3rd time verif)  
 VK - 05 }  
 VK - 06 }  
 VK - 07 }



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:	<input type="text" value="GP"/>	Date:	<input type="text" value="31/3/14"/>
------------	---------------------------------	-------	--------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

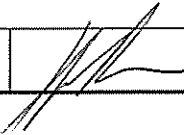
Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	31/3/14.
------------	---	-------	----------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:


Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="31.03.14"/>
------------	---	-------	---------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:			Date:	<input type="text" value="01.04.14"/>
------------	--	--	-------	---------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	<input type="text" value="1/4/14"/>
------------	--	-------	-------------------------------------



**Environmental Resources Management Australia Pty Ltd**  
*PID Calibration Certificate*

Project Name :  Project Staff :   
Project No :  Date :

**Photo-ionisation Detector**

Make/Model No:   
Serial Number:

**Calibration Gas**

Calibration Gas:

**PID Calibration**

Zero Calibration

PID Reading:

Span Calibration

Desired PID Reading:   
Actual PID Reading:

**Certification**

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:

Signature:		Date:	02.04.14
------------	--	-------	----------



# Groundwater - Well Sampling Data Form

Job Information	
Date: 28/3/14	Time: arrive _____ depart 1:38
Project Name: SYMPHONY	Project Number: 0237747
Site Location: VALES POINT	Sampler: S. OSMAN
Well ID: VA-MW06	Weather: OVERCAST + WARM

Equipment	
Water quality equipment description: YSI	Interface probe number: 122 008437-1
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
11.62 m (-) 1.12 m (=) 10.5 m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
10.5 m (x) 1.96 (=) 20 L									
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time: 12:36			Ending purge time: 1:07						
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	12:41	6.50	22.8	583	1.87	-36.0	1.51	cloudy, no odour	
2	12:48	6.46	22.5	582	1.73	-49.4	1.86	" "	
3	12:56	6.46	22.8	584	1.51	-63.5	2.195	" "	
4	1:06	6.46	22.9	585	2.03	-64.5	2.54	" "	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume			Actual amount of water prior to sampling			Sample time 1:10		Containers used 3+1+1+1	
Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> X			

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/>	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/>	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> X	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/>	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/>	
Duplicate sample ID		D04-280314-50	
Rinsate blank ID		_____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>4:05</u> depart <u>4:50</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POIN</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VA-MW01</u>	Weather: <u>OVERCAST + HUMID</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>2.61</u> m (-) <u>0.555</u> m (=) <u>2.055</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.05</u> m (x) <u>1.96</u> (=) <u>4</u> L									
Depth to product: <u>        </u> m		Product Thickness: <u>        </u> m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>4:15 PM</u>					Ending purge time: <u>4:33</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	4:20	6.39	25.4	2171	0.48	-48.3	0.557	SLIGHTLY CLOUDY, NO ODOUR	
2	4:25	6.31	25.5	2161	1.65	-23.2	0.557	" "	
3	4:29	6.19	25.5	2161	1.51	-18.6	0.557	" "	
4	4:33	6.15	25.6	2168	1.29	-24.5	0.557	" "	
*pH, temp, cond readings not necessary if well is purged dry <span style="float: right;">Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth</span>									
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>4:35</u>		Containers used <u>3+1+1+1</u>	
Flow rate mL/minute			Did field parameters stabilise?			Was the well dry purged?			
			<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			<input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID		<u>        </u>
Rinsate blank ID		<u>        </u>





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>3:15</u> depart <u>4:00</u>
Project Name: <u>SYMPTOMY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VA-MW02</u>	Weather: <u>OVERCAST + HUMID</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	<b>Volume of water in well / V</b> = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>13.875</u> m (-) <u>1.375</u> m (=) <u>12.5</u> m									
$\begin{array}{r} 13.875 \\ -1.375 \\ \hline 12.500 \end{array}$		Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>12.5</u> m (x) <u>1.96</u> (=) <u>25</u> L							
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer:			<input type="checkbox"/> Y <input type="checkbox"/> N		

Water Quality Parameters								
Beginning purge time: <u>3:25</u>			Ending purge time: <u>3:45</u>					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>1</u>	<u>3:30</u>	<u>6.67</u>	<u>23.2</u>	<u>729</u>	<u>0.4</u>	<u>-14.3</u>	<u>1.415</u>	<u>clear, no odour</u>
<u>2</u>	<u>3:35</u>	<u>6.37</u>	<u>22.8</u>	<u>718</u>	<u>0.29</u>	<u>-31.9</u>	<u>1.42</u>	" "
<u>3</u>	<u>3:40</u>	<u>6.76</u>	<u>22.7</u>	<u>715</u>	<u>0.32</u>	<u>-48.8</u>	<u>1.423</u>	" "
<u>4</u>	<u>3:45</u>	<u>6.78</u>	<u>22.6</u>	<u>714</u>	<u>0.45</u>	<u>-4.2</u>	<u>1.430</u>	" "
*pH, temp, cond readings not necessary if well is purged dry								<b>Example Comments:</b> clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth
Total Well Volume			Sample time <u>3:45</u>			Containers used <u>3+1+1+1</u>		
Actual amount of water prior to sampling								
Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> N NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/>		

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> N NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> N NA
Duplicate sample collected?	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input checked="" type="checkbox"/> X
Duplicate sample ID <u>D02-250314-SB</u>	
Rinsate blank ID _____	

Triplicate ID T01-250314-SB



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>7:50</u> depart
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O</u>
Well ID: <u>VA-MW03</u>	Weather: <u>OVERCAST + COOL</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>11.97</u> m (-) <u>2.535</u> m (=) <u>9.43</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>9.43</u> m (x) <u>1.96</u> (=) <u>18.7</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>8:20</u>				Ending purge time: <u>9:55</u>					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>8:24</u>	<u>6.65</u>	<u>22.8</u>	<u>579</u>	<u>2.29</u>	<u>-34.1</u>	<u>2.98</u>	<u>clear, no odour. Draw down &gt;10cm</u>	
<u>2</u>	<u>8:30</u>	<u>6.60</u>	<u>23.0</u>	<u>578</u>	<u>1.66</u>	<u>-19.8</u>	<u>3.44</u>	<u>" " but pump is at</u>	
<u>3</u>	<u>8:36</u>	<u>6.56</u>	<u>22.9</u>	<u>577</u>	<u>1.98</u>	<u>-14.2</u>	<u>3.675</u>	<u>" " slowest speed</u>	
<u>4</u>	<u>8:45</u>	<u>6.56</u>	<u>22.9</u>	<u>579</u>	<u>1.73</u>	<u>-15.9</u>	<u>4.04</u>	<u>" " possible</u>	
<u>5</u>	<u>8:55</u>	<u>6.55</u>	<u>23.0</u>	<u>583</u>	<u>1.88</u>	<u>-17.0</u>	<u>4.39</u>	<u>" "</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume Actual amount of water prior to sampling				Sample time <u>9:00</u>		Containers used <u>3+1+1+1</u>			
Flow rate mL/minute				Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		
Rinsate blank ID _____		



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26.03.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237747
Site Location: B' Station Power Block	Operator: S. NUTHALAKATI
Well ID: VA-MW04	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 5.835 m (-) 2.330 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters									
Beginning purge time: 9:29					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	9:32	3.21	543	5.97	186.2	23.1	2.470	Clear - no odour.	
1.0	9:36	3.57	412	5.98	180.0	23.3	2.630	"	
1.5	9:41	3.69	331.5	5.98	185.3	23.3	2.740	"	
2.0	9:46	3.82	314.0	5.98	186.0	23.4	2.850	"	
2.5	9:50	3.93	311.7	5.98	187.5	23.3	2.900	"	
3.0	9:56	3.67	312.9	5.98	173.5	23.4	2.900	"	
								Sampled @ 9:58	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid <u>no odour</u> slight odour / odour / strong odour		

Total Well Volume Purged	Final amount of water purged prior to sampling	*pH, temp, cond readings not necessary if well is purged dry
100ml/min		S.N
Did field parameters stabilise?	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA	Was the well dry purged? <input checked="" type="radio"/> Y <input type="radio"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA

*Drawdown hasn't stabilised. S.N*



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26.03.14	Time: arrive depart
Project Name: SYPHONIT	Project Number: 237747
Site Location: B station Pooch BLOC	Operator: S. NUTHALAPATI
Well ID: JA-mw05	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon
Pump type: <u>Peristaltic</u>	Submersible Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column	$7.660 \text{ m} - (2.430 \text{ m}) = \text{_____ m}$ Water Column (x) Conversion Factor (=) Litres per 1 Well Volume $\text{_____ m (x) _____ (=) _____ L}$								

Water Quality Parameters										
Beginning purge time: 10:16					Ending purge time:					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (°C)	DTW (mb TOC)	Comments		
0.5	10:21	1.45	1385	4.47	298.4	22.6	2.520	Turbid. light Orange. no odour.		
1.0	10:27	1.74	1368	4.48	305.4	22.6	2.520	"		
1.5	10:30	0.97	1400	4.48	297.5	22.5	2.535	"		
2.0	10:35	0.73	1408	4.47	288.0	22.4	2.540	"		
2.5	10:40	0.51	1416	4.47	284.5	22.5	2.540	"		
3.0	10:45	0.42	1417	4.44	281.3	22.4	2.540	"		
								Sampled C. 10:46		
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / <u>no odour</u> / slight odour / odour / strong odour			
3.0		Total Well Volume Purged					*pH, temp, cond readings not necessary if well is purged dry			
		Final amount of water purged prior to sampling								
Did field parameters stabilise?					<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		Was the well dry purged?			
							<input type="radio"/> Y <input checked="" type="radio"/> N			

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>1:35</u> depart <u>2:05</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VB-MW01</u>	Weather: <u>OVERCAST + HUMID</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor <small>(volume in factor L/m)</small>	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.035</u> m (-) <u>0.905</u> m (=) <u>3.13</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.13</u> m (x) <u>1.96</u> (=) <u>6.2</u> L									
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time: <u>1:40</u>					Ending purge time: <u>2:00</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>1:45</u>	<u>4.28</u>	<u>25.8</u>	<u>1332</u>	<u>2.67</u>	<u>105.8</u>	<u>0.985</u>	<u>SLIGHTLY CLOUDY, NO ODOUR</u>	
<u>2</u>	<u>1:50</u>	<u>4.24</u>	<u>26.1</u>	<u>1281</u>	<u>3.65</u>	<u>110.0</u>	<u>1.07</u>	<u>" "</u>	
<u>3</u>	<u>1:55</u>	<u>4.26</u>	<u>26.2</u>	<u>1246</u>	<u>3.48</u>	<u>116.1</u>	<u>1.11</u>	<u>" "</u>	
<u>4</u>	<u>2:00</u>	<u>4.28</u>	<u>26.3</u>	<u>1201</u>	<u>3.20</u>	<u>114.3</u>	<u>1.13</u>	<u>" "</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume Actual amount of water prior to sampling					Sample time <u>2:01</u> Containers used <u>3+1+1+1</u>				
Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> X	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA <u>X1</u>
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> X Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> X Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>12:55</u> depart <u>1:30</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VB-MW02</u>	Weather: <u>OVERCAST + HUMID</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.06</u> m (-) <u>1.185</u> m (=) <u>2.87</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.87</u> m (x) <u>1.96</u> (=) <u>5.7</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>1:04</u>					Ending purge time: <u>1:22</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>1:07</u>	<u>5.85</u>	<u>25.2</u>	<u>592</u>	<u>3.21</u>	<u>37.9</u>	<u>1.280</u>	<u>Clear, no odour</u>	
<u>2</u>	<u>1:12</u>	<u>5.8</u>	<u>25.3</u>	<u>575</u>	<u>3.23</u>	<u>33.4</u>	<u>1.365</u>	"	
<u>3</u>	<u>1:17</u>	<u>5.78</u>	<u>25.4</u>	<u>573</u>	<u>3.4</u>	<u>29.0</u>	<u>1.42</u>	"	
<u>4</u>	<u>1:22</u>	<u>5.77</u>	<u>25.3</u>	<u>570</u>	<u>3.24</u>	<u>28.1</u>	<u>1.46</u>	"	
*pH, temp, cond readings not necessary if well is purged dry							Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth		
Total Well Volume		Actual amount of water prior to sampling			Sample time <u>1:23</u>		Containers used <u>3+1+1</u>		
Flow rate mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		
Rinsate blank ID _____		



# Groundwater - Well Sampling Data Form

Job Information	
Date: 31/3/14	Time: arrive 0700 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT.	Sampler: K. McLEAN
Well ID: VB-MW03	Weather: FINE

Equipment	
Water quality equipment description: YSI 11F101305	Interface probe number: Geotech - SYD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 5.267 m (-) 2.385 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N									

Water Quality Parameters								
Beginning purge time:				Ending purge time:				
Litres	Time	PH	Temp °C	Cond <sup>WS</sup> $\mu$ S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	16:16	4.71	22.9	1709	76.60	104.1	/	Dark grey, turbid, slight possible sulphur
2	16:21	4.41	22.3	1782	84.92	123.3	/	like odour
3	16:23	4.16	21.5	1837	84.70	134.8	/	" "
4	16:24	4.16	21.5	1798	79.94	119.9	/	" "
5	16:26	4.13	21.5	1858	79.10	131.2	2.440	" "
6	16:29	3.93	21.5	1960	65.81	156.3	2.435	" "
7	16:32	3.91	21.5	1983	62.10	158.0	2.443	" "
8	16:34	4.11	21.5	1874	62.58	142.0	2.435	" "
9	16:36	4.12	21.6	1897	55.26	14.9	/	
10	16:39	3.98	21.5	1970	54.30	152.7	/	

\*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

12	Total Well Volume Actual amount of water prior to sampling	Sample time 16:46	Containers used 7
330	Flow rate mL/minute	Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID _____
Rinsate blank collected?	Y	N	Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: 31/3/14	Time: arrive 0700 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT	Sampler: K. McLean
Well ID: VB-MW03	Weather: FINE

Equipment	
Water quality equipment description: VSI 11F101305	Interface probe number: Geotech : SVD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible <b>Micro-purge</b> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
5.267 m (-) 2.385 m (=) 2.882 m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
2.882 m (x) 1.96 (=) 5.649 L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	
11	16:41	3.92	21.5	1995	53.44	157.9	✓	Very cloudy, dark grey, no odour
12	16:44	3.92	21.5	2006	49.93	158.8	✓	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

12	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time 16:46	Containers used 7
330	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
	Duplicate sample ID	_____
	Rinsate blank ID	_____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01-04-14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>237747</u>
Site Location: <u>A STATION POWER BLOCK</u>	Sampler: <u>S. NATHALAPATI</u>
Well ID: <u>VB-MW05</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description	Interface probe number: <u>NSD 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.125</u> m (-) <u>2.100</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>pid: 4.6 ppm</u>									

Water Quality Parameters								
Beginning purge time: <u>7:47</u>				Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	7:50	5.78	25.5	2699	5.24	114.2	2.230	Clear. No odour
2.0	7:53	5.13	25.9	2196	5.70	111.8	2.325	" "
3.0	7:56	5.63	26.2	1658	4.70	96.2	2.435	" "
4.0	7:59	5.60	26.1	1620	4.54	94.3	2.575	" "
5.0	8:02	5.58	26.1	1594	4.46	92.6	2.690	" "
6.0	8:05	5.53	26.1	1583	4.26	87.5	2.800	" "
7.0	8:08	5.50	26.0	1588	4.22	86.1	2.880	" "
								Sampled @ 8:10
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: <input type="checkbox"/> clear / <input type="checkbox"/> lightly cloudy / turbid / very turbid <input type="checkbox"/> no odour / <input type="checkbox"/> slight odour / odour / strong odour / drawdown depth
<u>7.0L</u>	Total Well Volume			Actual amount of water prior to sampling			Sample time <u>8:10</u>	Containers used <u>5</u>
<u>1.0L</u>	Flow rate			mL/minute			Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<u>Draw down hasn't stabilised</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA	
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA	
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA	
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	Duplicate sample ID <u>D01-010414-SNCR-00</u>
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>28/3/14</u>	Time: arrive _____ depart <u>11:15</u>
Project Name: <u>SUMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VC-MW04</u>	Weather: <u>OVERCAST</u>

Equipment	
Water quality equipment description: <u>YSI</u>	Interface probe number: <u>122 008437-1</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.025</u> m (-) <u>1.745</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>10:38</u>			Ending purge time: <u>11:00</u>						
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	10:44	6.06	26.2	2177	1.09	50.3	1.92	Slightly cloudy, no odour	
2	10:49	6.12	26.4	2153	1.90	39.8	2.03	" "	
3	10:54	6.15	26.4	2062	2.43	36.5	2.13	" "	
4	11:00	6.15	26.3	1875	2.44	28.2	2.25	Clear, no odour	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume			Sample time <u>11:05</u>			Containers used <u>3+1+1+1</u>			
Actual amount of water prior to sampling			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			
Flow rate mL/minute									

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____

VC



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26.03.14	Time: arrive _____ depart _____
Project Name: STROPHONY	Project Number: 237747
Site Location: TRANSFORMERS	Operator: S. NISHALAPATI
Well ID: VC MW01	Weather: SHOWERS

Equipment	
Water quality equipment description:	
Interface probe number: NSW4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>5.525</u> m (-) <u>2.010</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.0 PPM

Water Quality Parameters								
Beginning purge time: 13:08					Ending purge time:			
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
0.6	13:11	2.82	1622	4.40	37.7	26.3	2.195	Clear no odour
1.2	13:14	3.08	1586	4.36	316.6	26.3	2.250	" "
1.8	13:17	3.19	1515	4.33	321.0	26.4	2.320	" "
2.4	13:20	2.81	1450	4.31	335.2	26.4	2.410	" "
3.0	13:23	2.70	1419	4.37	334.7	26.4	2.480	" "
3.5	13:26	2.76	1322	4.56	313.1	26.4	2.540	" "
4.0	13:29	2.83	1320	4.73	296.7	26.4	2.610	" "
4.5	13:32	2.80	1358	4.81	288.6	26.4	2.660	" "
								Sampled @ 13:33
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments <u>clear</u> slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour	

Total Well Volume Purged \_\_\_\_\_ Final amount of water purged prior to sampling \_\_\_\_\_ \*pH, temp, cond readings not necessary if well is purged dry

Did field parameters stabilise? Y  N  NA  Was the well dry purged? Y  N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA

Redox hasn't stabilised.  
Rinsate: RO1-260314-SN @ 14:00  
Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26.03.14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 237947
Site Location: B Station Power Block	Operator: S. NUTHALAPATI
Well ID: VC MW02	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	25mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 4.030 m (-) 2.380 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.0ppm

Water Quality Parameters									
Beginning purge time: 11:08					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (°C)	DTW (mb TOC)	Comments	
0.5	11:12	0.14	11375	5.54	51.7	22.5	2.400	Cloudy. NO odour	
1.0	11:15	0.01	11461	5.56	48.6	25.7	2.420	" "	
1.5	11:18	-	11270	5.53	55.3	25.8	2.425	" "	
2.0	11:21	-	10896	5.50	68.0	25.7	2.435	" "	
2.5	11:24	-	10571	5.54	65.3	25.8	2.445	" "	
3.0	11:27	-	10261	5.60	43.7	25.9	2.455	" "	
								Sampled @ 11:28	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly <u>cloudy</u> / turbid / very turbid ( <u>no odour</u> ) / slight odour / odour / strong odour		
Total Well Volume Purged							*pH, temp, cond readings not necessary if well is purged dry		
Final amount of water purged prior to sampling									
150ml/min							Did field parameters stabilise? Y <input checked="" type="radio"/> N <input type="radio"/> NA <input type="checkbox"/> Was the well dry purged? Y <input type="radio"/> N <input checked="" type="radio"/>		

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	Y	N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	NA
Was documentation of equipment conducted?	Y	NA
Were air bubbles present in vials at time of collection?	Y	NA
Was sample for metals field filtered prior to preservations?	Y	NA
Duplicate or Rinsate (before/after) sample collected?	Y	N

'DO' stopped registering after second reading.  
 Redox hasn't stabilised.  
 Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26.03.14	Time: arrive <span style="margin-left: 100px;">depart</span>
Project Name: SYMPHONY	Project Number: 237747
Site Location: T. N. S. E. D. M. C. S.	Operator: S. NUTHALAPATI
Well ID: VC-MW05	Weather: SUNNY

Equipment	
Water quality equipment description:	
Interface probe number:	NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 4.035 m (-) 1.875 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <span style="float: right;">PID = 0.0 PPM</span>									

Water Quality Parameters									
Beginning purge time: 11:27					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.6	11:50	2.39	915	6.34	47.8	26.1	1.955	Clear. NO odour	
1.2	11:53	2.22	988	6.37	64.8	26.3	1.985	" "	
1.8	11:56	2.07	685	6.44	75.7	26.4	2.030	" "	
2.4	12:59	1.98	668	6.47	62.4	26.5	2.065	" "	
3.0	12:02	1.93	668	6.46	54.3	26.4	2.090	" "	
3.5	12:05	1.78	669	6.46	49.6	26.5	2.100	" "	
								Sampled @ 12:06	
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour		

<b>Total Well Volume Purged</b> Final amount of water purged prior to sampling 200ml/min		*pH, temp, cond readings not necessary if well is purged dry Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
--	--	---	--	---	--

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

Redox hasn't stabilised

Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>ST. MARY'S</u>	Project Number: <u>237747</u>
Site Location: <u>MAIN STORE</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>JD-MW01</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	<b>Volume of water in well / V</b> = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.045</u> m (-) <u>0.870</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID: 0-08m</u>									

Water Quality Parameters									
Beginning purge time: <u>13:19</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1.0</u>	<u>13:22</u>	<u>4.69</u>	<u>27.4</u>	<u>3828</u>	<u>0.54</u>	<u>-141.3</u>	<u>0.970</u>	<u>Turbid. no odour</u>	
<u>2.0</u>	<u>13:25</u>	<u>4.66</u>	<u>26.6</u>	<u>3777</u>	<u>0.54</u>	<u>-168.0</u>	<u>0.980</u>	"	
<u>3.0</u>	<u>13:28</u>	<u>4.61</u>	<u>26.5</u>	<u>3757</u>	<u>0.60</u>	<u>-170.4</u>	<u>0.980</u>	"	
<u>4.0</u>	<u>13:31</u>	<u>4.57</u>	<u>26.2</u>	<u>3721</u>	<u>0.67</u>	<u>-169.3</u>	<u>0.980</u>	<u>Slightly cloudy</u>	
<u>5.0</u>	<u>13:34</u>	<u>4.55</u>	<u>26.3</u>	<u>3719</u>	<u>0.76</u>	<u>-169.3</u>	<u>0.980</u>	"	
<u>6.0</u>	<u>13:37</u>	<u>4.52</u>	<u>26.3</u>	<u>3710</u>	<u>0.84</u>	<u>-175.0</u>	<u>0.980</u>	"	
								<u>Sampled @ 13:38</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / <u>turbid</u> / no odour / slight odour / odour / strong odour / drawdown depth	
<u>6.0</u>	Total Well Volume			Actual amount of water prior to sampling			Sample time <u>13:38</u>	Containers used <u>5</u>	
<u>1.0L/min</u>	Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Duplicate sample ID _____		Rinsate blank ID <u>ROL 31034-SW @ 141.00</u>





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>16:00</u> depart <u>16:45</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>Dane Brookes</u>
Well ID: <u>VD_MW02</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>Y31</u>	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	<b>Volume of water in well / V</b> = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	<u>4.348</u> m (-) <u>1.016</u> m (=) <u>3.3</u> m								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume	<u>3.3</u> m (x) <u>1.96</u> (=) <u>~6.6</u> L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters								
Beginning purge time:			Ending purge time:					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>0.2</u>	<u>16:06</u>	<u>4.39</u>	<u>22.6</u>	<u>3608</u>	<u>0.23</u>	<u>314.3</u>	<u>1.158</u>	<u>Clear, colourless, no odour.</u>
<u>0.8</u>	<u>16:10</u>	<u>4.35</u>	<u>22.6</u>	<u>3601</u>	<u>0.03</u>	<u>318.7</u>	<u>1.200</u>	" "
<u>1.4</u>	<u>16:14</u>	<u>4.33</u>	<u>22.5</u>	<u>3569</u>	<u>0.01</u>	<u>319.7</u>	<u>1.218</u>	" "
<u>2.0</u>	<u>16:18</u>	<u>4.34</u>	<u>22.5</u>	<u>3592</u>	<u>-</u>	<u>320.6</u>	<u>1.225</u>	<u>DO not displaying reading "-----"</u>
<u>2.6</u>	<u>16:22</u>	<u>4.36</u>	<u>22.5</u>	<u>3573</u>	<u>0.00</u>	<u>319.8</u>	<u>1.228</u>	<u>Clear, colourless, no odour.</u>
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

<u>2.6</u>	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time <u>16:24</u>	Containers used <u>5</u>
<u>150</u>	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID _____	
Rinsate blank ID _____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>15:15</u> depart <u>16:00</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point J</u>	Sampler: <u>Dane Brookes</u>
Well ID: <u>VD_MW03</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>Ysi</u>	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	<b>Volume of water in well / V</b> = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>3.550</u> m (-) <u>0.555</u> m (=) <u>~3</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>~3</u> m (x) <u>1.96</u> (=) <u>~6</u> L									
Depth to product: <u>-</u> m Product Thickness: <u>-</u> m Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time:					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>15:23</u>	<u>5.42</u>	<u>25.8</u>	<u>5190</u>	<u>2.24</u>	<u>135.0</u>	<u>0.612</u>	<u>Clear, colourless, no odour.</u>	
<u>0.8</u>	<u>15:27</u>	<u>5.33</u>	<u>25.9</u>	<u>3985</u>	<u>3.75</u>	<u>186.4</u>	<u>0.618</u>	<u>" "</u>	
<u>1.4</u>	<u>15:31</u>	<u>5.30</u>	<u>25.9</u>	<u>3870</u>	<u>2.90</u>	<u>214.8</u>	<u>0.620</u>	<u>" "</u>	
<u>2.0</u>	<u>15:35</u>	<u>5.31</u>	<u>26.5</u>	<u>3881</u>	<u>3.46</u>	<u>216.9</u>	<u>0.620</u>	<u>" "</u>	
<u>2.6</u>	<u>15:39</u>	<u>5.32</u>	<u>25.9</u>	<u>3806</u>	<u>3.39</u>	<u>218.5</u>	<u>0.620</u>	<u>" "</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

<u>2.6</u>	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time <u>15:40</u>	Containers used <u>5</u>
<u>150</u>	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
	Duplicate sample ID	<u>                    </u>
	Rinsate blank ID	<u>                    </u>



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>27/3/14</u>	Time: arrive _____ depart <u>9:00</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VD-MW04</u>	Weather: <u>OVERCAST + LIGHT RAIN</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4:045</u> m (-) <u>0:233</u> m (=) <u>3:12</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3:12</u> m (x) <u>1.96</u> (=) <u>6</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer:		<input type="checkbox"/> Y <input type="checkbox"/> N			

Water Quality Parameters								
Beginning purge time: <u>8:20</u>			Ending purge time: <u>8:45</u>					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	8:25	5.04	25.7	3700	0.97	91.3	0.965	Slightly cloudy, no odour
2	8:30	4.84	25.8	3666	0.78	107.6	0.965	" "
3	8:37	4.75	25.6	3647	0.71	117.5	0.97	" "
4	8:43	4.70	25.4	3619	0.33	123.9	0.965	" "
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

<b>Total Well Volume</b> Actual amount of water prior to sampling		Sample time <u>3:50</u> Containers used <u>3+1+1</u>	
<b>Flow rate</b> mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input type="checkbox"/> N
Duplicate sample ID _____ Rinsate blank ID _____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>SUMPHONY</u>	Project Number: <u>237747</u>
Site Location: <u>MAIN STORE</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>VD-MW05</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSLO 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.005</u> m (-) <u>4.060</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID: 0.188m</u>									

Water Quality Parameters									
Beginning purge time: <u>12:43</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.6	<u>12:48</u>	<u>4.67</u>	<u>23.7</u>	<u>3225</u>	<u>0.45</u>	<u>-172.4</u>	<u>4.100</u>	<u>Faint sulphur odour. Turbid. light grey</u>	
1.2	<u>12:49</u>	<u>4.63</u>	<u>23.7</u>	<u>3195</u>	<u>0.25</u>	<u>-182.9</u>	<u>4.120</u>	"	
1.8	<u>12:52</u>	<u>4.61</u>	<u>23.7</u>	<u>3192</u>	<u>0.36</u>	<u>-191.9</u>	<u>4.130</u>	"	
2.4	<u>12:55</u>	<u>4.55</u>	<u>23.5</u>	<u>3123</u>	<u>0.50</u>	<u>-204.3</u>	<u>4.145</u>	"	
3.0	<u>12:58</u>	<u>4.54</u>	<u>23.4</u>	<u>3105</u>	<u>0.71</u>	<u>-209.5</u>	<u>4.150</u>	"	
3.6	<u>13:01</u>	<u>4.53</u>	<u>23.6</u>	<u>3100</u>	<u>0.93</u>	<u>-214.7</u>	<u>4.155</u>	"	
<u>Sampled @ 13:02</u>									
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume Actual amount of water prior to sampling					Sample time <u>13:02</u> Containers used <u>7</u>				
Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA      Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>28/3/14</u>	Time: arrive _____ depart <u>8:40</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VE-MWOZ</u>	Weather: <u>OVERCAST + LIGHT RAIN</u>

Equipment	
Water quality equipment description: <u>YSI 09K 100887</u>	Interface probe number: <u>122008437-1</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	<u>4.04</u> m (-) <u>1.345</u> m (=) <u>2.69</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.69</u> m (x) <u>1.96</u> (=) <u>5.3</u> L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer:		Y		N			

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	
Beginning purge time: <u>8:02</u>	Ending purge time: <u>8:27</u>							
1	8:07	4.20	22.9	3171	0.41	18.5	1.365	SLIGHTLY CLOUDY, NO ODOUR
2	8:14	4.18	23.0	3170	0.56	108.2	1.365	" "
3	8:22	4.20	23.2	3164	0.64	153.6	1.38	" "
4	8:27	4.26	23.4	3152	0.55	127.7	1.375	" "
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling	Sample time <u>8:30</u>	Containers used <u>3+1+1</u>
Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> X

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID	<u>5</u>	
Rinsate blank ID	<u>5</u>	



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>28/3/14</u>	Time: arrive _____ depart <u>10:00</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VE-MW03</u>	Weather: <u>OVERCAST + LIGHT RAIN</u>

Equipment	
Water quality equipment description: <u>YSI</u>	Interface probe number: <u>122008437-1</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.73</u> m (-) <u>1.515</u> m (=) <u>3.22</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.22</u> m (x) <u>1.96</u> (=) <u>6.31</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>9:21</u>					Ending purge time: <u>9:46</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	9:26	4.42	22.3	1196	4.00	114.3	1.64	Slightly cloudy, no odour	
2	9:31	4.40	22.4	1181	3.99	122.3	1.685	" "	
3	9:36	4.37	22.4	1151	3.28	121.4	1.715	" "	
4	9:42	4.35	22.4	1129	2.82	109.2	1.735	" "	
5	9:46	4.33	22.3	1113	2.50	96.7	1.75	" "	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume Actual amount of water prior to sampling				Sample time <u>9:50</u>		Containers used <u>3+1+1</u>			
Flow rate mL/minute				Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID: _____		
Rinsate blank ID: _____		

# VF



## Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>SHORHENY</u>	Project Number: <u>237747</u>
Site Location: <u>Waste Oil Storage Area</u>	Sampler: <u>S. NUTHALATHI</u>
Well ID: <u>JF MW01</u>	Weather: <u>CLOUDY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>MSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>5.895</u> m (-) <u>1.950</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID = 0.0 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>16:03</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0-6	16:06	5.20	24.4	561	3.17	200.1	2.150	Clear: NO odour	
1-2	16:09	5.12	24.5	555	2.86	249.0	2.330	" "	
1-8	16:12	5.11	24.7	557	2.60	265.0	2.380	" "	
2-4	16:15	5.11	24.6	555	2.60	278.7	2.420	" "	
3-0	16:18	5.12	24.5	555	2.55	282.2	2.450	" "	
3-6	16:21	5.12	24.5	553	2.47	285.7	2.470	" "	
Sampled @ 16:22									
*pH, temp, cond readings not necessary if well is purged dry Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth									

200	Total Well Volume Actual amount of water prior to sampling	Sample time _____	Containers used _____
	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Duplicate sample ID _____		
Rinsate blank ID <u>RO1-250314-SN @ 15:00</u>		





# Groundwater - Well Sampling Data Form

Job Information	
Date: 25.03.14	Time: arrive _____ depart _____
Project Name: SAMPHANT	Project Number: 237747
Site Location: waste oil storage Area	Sampler: S. NUTHALAPATI
Well ID: JF-MW02	Weather: CLOUDY

Equipment	
Water quality equipment description:	Interface probe number: NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 3.755 m (-) 3.275 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N PID: 0-0PPM									

Water Quality Parameters									
Beginning purge time: 15:22					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.5	15:25	5.93	26.6	1286	-	19.5	3.350	Slightly cloudy - no odour	
1.0	15:29	5.92	26.7	945	0.23	86.4	3.460	"	
1.5	15:34	5.81	26.7	1027	0.22	65.1	3.550	"	
2.0	15:39	5.82	26.8	1097	0.15	23.7	3.610	"	
2.5	15:44	5.86	27.1	1112	0.22	15.6	3.605	"	
3.0	15:49	5.85	27.3	1126	0.20	18.9	3.615	"	
Sampled @ 15:50									
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth	

3.0	Total Well Volume Actual amount of water prior to sampling	Sample time 15:50	Containers used 5
100	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: 25.03.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237747
Site Location: waste oil storage Area	Operator: S. NUTHALAPATI
Well ID: VF-MW03	Weather: CLOUDY / WINDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 0254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ $r = \text{radius in m}$ $h = \text{height of water column in m}$									
Total Well Depth (-) Water level (=) Water Column 6.850 m (-) 1.235 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L PID = 0.0 PPM									

Water Quality Parameters								
Beginning purge time: 16:34					Ending purge time:			
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
0.8	16:37	0.76	536	5.54	145.8	28.2	1.340	Slightly cloudy. no odour
1.2	16:40	0.58	540	5.56	144.0	28.5	1.385	Turbid, light orange. no odour
1.8	16:43	0.61	541	5.55	142.5	28.4	1.410	" "
2.4	16:46	0.66	541	5.54	143.5	28.4	1.425	" "
3.0	16:49	0.63	539	5.52	146.1	28.2	1.425	" "
3.6	16:52	0.58	540	5.52	149.7	28.3	1.425	" "
								Sampled C. 16:53
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour	

Total Well Volume Purged \_\_\_\_\_  
 Final amount of water purged prior to sampling \_\_\_\_\_

Did field parameters stabilise?  Y  N  NA
 Was the well dry purged?  Y  N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>237747</u>
Site Location: <u>FUEL OIL INSTALLATION</u>	Sampler: <u>S. NATHALAPATI</u>
Well ID: <u>VG-0400</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description: <u>NSUR 4254</u>	Interface probe number: _____
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>14.660</u> m (-) <u>9.305</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m    Product Thickness: _____ m    Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID: 0.18PM</u>									

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	
0.5	9:56	5.29	23.0	251.1	4.55	113.8	3.465	cloudy, no odour.
1.0	10:01	5.27	22.7	240.0	4.43	135.0	2.530	"
1.5	10:06	5.25	23.0	225.1	4.50	134.2	3.575	"
2.0	10:11	5.22	23.2	230.4	4.18	132.8	3.590	"
2.5	10:16	5.18	23.1	224.5	4.57	132.8	3.595	"
3.0	10:21	5.21	23.2	234.1	4.51	129.5	3.600	"
								Sampled @ 10:22
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth

<u>3.0L</u>	Total Well Volume	Actual amount of water prior to sampling	Sample time <u>10:22</u>	Containers used <u>4</u>
<u>100ml/min</u>	Flow rate	mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	Duplicate sample ID _____
	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SIMPONENT</u>	Project Number: <u>23 7947</u>
Site Location: <u>FUELOIL INSTALLATION</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>Va-MW02</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>8.675</u> m (-) <u>8.165</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>AD: 0.07m</u>									

Water Quality Parameters									
Beginning purge time: <u>11:39</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.5</u>	<u>11:42</u>	<u>3.79</u>	<u>22.5</u>	<u>4422</u>	<u>3.66</u>	<u>198.7</u>	<u>8.220</u>	<u>cloudy - no odour seen observed.</u>	
<u>1.0</u>	<u>11:45</u>	<u>3.84</u>	<u>22.4</u>	<u>4650</u>	<u>3.77</u>	<u>197.6</u>	<u>8.265</u>	"	
<u>1.5</u>	<u>11:48</u>	<u>3.86</u>	<u>22.4</u>	<u>4419</u>	<u>3.86</u>	<u>200.0</u>	<u>8.305</u>	"	
<u>2.0</u>	<u>11:51</u>	<u>3.87</u>	<u>22.4</u>	<u>4419</u>	<u>3.58</u>	<u>196.4</u>	<u>8.345</u>	"	
<u>2.5</u>	<u>11:54</u>	<u>3.88</u>	<u>22.5</u>	<u>4421</u>	<u>3.50</u>	<u>192.5</u>	<u>8.370</u>		
<u>3.0</u>	<u>11:57</u>	<u>3.89</u>	<u>22.4</u>	<u>4419</u>	<u>3.77</u>	<u>191.1</u>	<u>8.390</u>		
<u>Sampled @ 12:00</u>									
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: clear / slightly cloud / <u>turbid</u> / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth									

<u>8.0 L</u>	Total Well Volume	Actual amount of water prior to sampling	Sample time: <u>12:00</u>	Containers used: <u>4</u>
<u>150 ml/min</u>	Flow rate	mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>well has been developed by leaving this morning, hence deeper</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>5.0m water table</u>
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SUNPHONT</u>	Project Number: <u>227747</u>
Site Location: <u>FUEL OIL INSTALLATION</u>	Sampler: <u>S. NITHALAKATI</u>
Well ID: <u>NG-MW03</u>	Weather: <u>SUNNY/OVERCAST</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>N5104254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u>
	Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>9.910</u> m (-) <u>8.180</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID = 2.5 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>14:08</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.5</u>	<u>14:09</u>	<u>5.85</u>	<u>23.5</u>	<u>376.8</u>	<u>4.53</u>	<u>-50.2</u>	<u>8.250</u>	<u>Clear - no odour</u>	
<u>1.1</u>	<u>14:12</u>	<u>5.41</u>	<u>23.3</u>	<u>266.3</u>	<u>4.58</u>	<u>-49.7</u>	<u>8.335</u>	"	
<u>1.7</u>	<u>14:15</u>	<u>5.20</u>	<u>23.4</u>	<u>227.1</u>	<u>4.23</u>	<u>-45.18</u>	<u>8.415</u>	"	
<u>2.4</u>	<u>14:18</u>	<u>5.11</u>	<u>23.4</u>	<u>217.6</u>	<u>4.10</u>	<u>-41.2</u>	<u>8.500</u>	"	
<u>3.0</u>	<u>14:21</u>	<u>5.15</u>	<u>23.3</u>	<u>213.9</u>	<u>4.24</u>	<u>-39.8</u>	<u>8.555</u>	"	
<u>3.6</u>	<u>14:24</u>	<u>5.13</u>	<u>23.5</u>	<u>213.8</u>	<u>4.13</u>	<u>-35.9</u>	<u>8.610</u>	"	
<u>Sampled @ 14:25</u>									
*pH, temp, cond reading not necessary if well is purged dry								Example Comment: <input type="checkbox"/> clear <input type="checkbox"/> slightly cloudy / turbid / very turbid <input type="checkbox"/> no odour / slight odour / odour / strong odour / drawdown depth	

<u>3.6</u>	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time <u>14:25</u> Containers used <u>4</u>
<u>200ml/min</u>	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>STROPHANT</u>	Project Number: <u>237747</u>
Site Location: <u>FUEL OIL INSTALLATION</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>VC-11004</u>	Weather: <u>OVERCAST</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NS104254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>70mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor <small>(volume in factor L/m)</small>	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>13.610</u> m (-) <u>7.910</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>210-0-199m</u>									

Water Quality Parameters								Comments
Beginning purge time: <u>2:37</u>				Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	
<u>0.7</u>	<u>2:40</u>	<u>5.38</u>	<u>23.1</u>	<u>355.2</u>	<u>4.92</u>	<u>2.7</u>	<u>8.020</u>	<u>Clear, no odour. Slight observed.</u>
<u>1.6</u>	<u>2:43</u>	<u>5.35</u>	<u>23.0</u>	<u>350.6</u>	<u>4.80</u>	<u>-11.0</u>	<u>8.150</u>	"
<u>2.1</u>	<u>2:46</u>	<u>5.35</u>	<u>23.1</u>	<u>345.0</u>	<u>4.75</u>	<u>-20.7</u>	<u>8.250</u>	"
<u>2.8</u>	<u>2:49</u>	<u>5.35</u>	<u>23.1</u>	<u>346.2</u>	<u>4.49</u>	<u>-22.4</u>	<u>8.325</u>	"
<u>3.5</u>	<u>2:52</u>	<u>5.32</u>	<u>23.4</u>	<u>345.8</u>	<u>4.27</u>	<u>-28.6</u>	<u>8.400</u>	"
<u>4.2</u>	<u>2:55</u>	<u>5.30</u>	<u>23.4</u>	<u>344.8</u>	<u>4.15</u>	<u>-34.4</u>	<u>8.470</u>	"
<u>4.9</u>	<u>2:58</u>	<u>5.28</u>	<u>23.4</u>	<u>343.0</u>	<u>4.04</u>	<u>-40.3</u>	<u>8.510</u>	"
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth

<u>4.9L</u>	Total Well Volume Actual amount of water prior to sampling	Sample time <u>15:10</u>	Containers used <u>4</u>
<u>175 ml/min</u>	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____



# VH-X



## Groundwater - Well Sampling Data Form

Job Information	
Date: 24/03/14	Time: arrive 15:00 depart 19:50
Project Name: SYMPHONY	Project Number: 0237747
Site Location: VINES POINT	Sampler: S.O
Well ID: VH-X-MW01	Weather: Overcast

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 5.18 m (-) 1.10 m (=) 4.18 m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume 4.18 m (x) 1.96 (=) 8.192 L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: 3:25 PM					Ending purge time: 3:40 PM				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	3:27	3.4	22	7180	0.74	252.4	1.345	very slightly cloudy, no odour	
2	3:30	3.37	22.1	7153	0.63	274.5	1.43	clear	
3	3:32	3.37	22.2	7138	0.80	271.5	1.455	"	
4	3:35	3.37	22.3	7125	0.84	270.2	1.47	"	
5	3:37	3.37	22.3	7105	0.76	269.5	1.485	"	
6	3:40	3.36	22.3	7064	1.03	268.7	1.47	"	
								Sampled @ 3:40 S.O	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

Total Well Volume	Actual amount of water prior to sampling	Sample time	Containers used
Flow rate mL/minute	Did field parameters stabilise?	Was the well dry purged?	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	Duplicate sample ID _____
	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>7:40</u> depart
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + SB</u>
Well ID: <u>VH-X-MW02</u>	Weather: <u>PARTLY CLOUDY</u>

Equipment	
Water quality equipment description: <u>YSI 600 PLUS</u>	Interface probe number: <u>09K100887</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>5.420</u> m (-) <u>0.903</u> m (=) <u>4.5</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>4.5</u> m (x) <u>1.96</u> (=) <u>9</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>07:51</u>					Ending purge time				
Litres	Time	PH	Temp °C	Cond $\mu S/cm$	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1.0</u>	<u>07:56</u>	<u>3.54</u>	<u>23.0</u>	<u>6353</u>	<u>0.57</u>	<u>138.2</u>	<u>0.95</u>	<u>Slightly cloudy, no odour.</u>	
<u>2.0</u>	<u>08:01</u>	<u>3.54</u>	<u>23.0</u>	<u>6536</u>	<u>0.71</u>	<u>178.3</u>	<u>0.98</u>	"	
<u>3.0</u>	<u>08:06</u>	<u>3.54</u>	<u>23.0</u>	<u>6536</u>	<u>0.96</u>	<u>186.6</u>	<u>0.98</u>	"	
<u>4.0</u>	<u>08:11</u>	<u>3.56</u>	<u>23.3</u>	<u>6448</u>	<u>1.11</u>	<u>184.7</u>	<u>0.98</u>	"	
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									

<u>4.0L</u>	Total Well Volume	Sample time <u>08:13</u>	Containers used <u>3+1+1</u>
<u>~200</u>	Actual amount of water prior to sampling	Flow rate mL/minute	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
	Duplicate sample ID	<u>                    </u>
	Rinsate blank ID	<u>                    </u>





# Groundwater - Well Sampling Data Form

Job Information	
Date: 24.03.14	Time: arrive 4:00 PM depart 4:45 PM
Project Name: SIMPHONY	Project Number: 0237747
Site Location: VALES POINT	Sampler: G.O./G.N
Well ID: V4-x-MW03	Weather: CLOUDY

Equipment	
Water quality equipment description	Interface probe number:
Purging equipment (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) Water level (=) Water Column									
5.215 m (-) 1.055 m (=) 4.185 m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
4.185 m (x) 1.96 (=) 8.202 L									
Depth to product	Product Thickness:		Verified with Bailer:		<input type="checkbox"/> Y <input type="checkbox"/> N <span style="float: right;">FID: 4.8 PPm</span>				

Water Quality Parameters									
Beginning purge time: 4:11					Ending purge time: 4:35				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1.0	4:14	3.53	24.2	117.2	1.57	257.2	1.195	Turbid - light yellow no odour	
2.0	4:17	3.53	24.2	163.8	0.60	232.4	1.205	"	
3.0	4:20	3.54	24.1	6.711	0.87	225.6	1.210	slightly cloudy	
4.0	4:22	3.54	24.1	2000	1.95	223.9	1.210	"	
5.0	4:25	3.55	24.2	6.446	0.83	220.4	1.210	"	
6.0	4:29	3.55	24.2	6.619	1.06	217.3	1.210	"	
7.0	4:32	3.56	24.2	83 <sup>45</sup>	1.88	216.8	1.210	"	
								Sampled @ 10:32	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy (turbid) very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume					Sample time		Containers used		
Actual amount of water prior to sampling									
Flow rate mL/minute					Did field parameters stabilise?		Was the well dry purged?		
					<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		<input type="checkbox"/> Y <input type="checkbox"/> N		

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>24/03/14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>SO + KM</u>
Well ID: <u>VH-X-MW04</u>	Weather: <u>OVERCAST + SHOWERS</u>

Equipment	
Water quality equipment description	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u>
	Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>5.21</u> m (-) <u>1.03</u> m (=) <u>4.18</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>4.18</u> m (x) <u>1.96</u> (=) <u>8.192</u> L									
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time: <u>12:11</u>					Ending purge time: <u>12:32</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	12:13	3.3	24	6270	0.75	227.6	1.19	slightly cloudy, no odour	
2	12:16	3.32	24	6288	0.76	224.6	1.20	v. slightly cloudy	
3	12:18	3.33	24.1	6247	0.68	229	1.20	"	
4	12:21	3.33	24.2	6256	0.83	232	1.20	"	
5	12:23	3.33	24.3	6281	0.94	232	1.21	"	
6	12:26	3.31	24.3	6307	1.12	2339	1.215	"	
7	12:29	3.32	24.3	6292	1.14	235.4	1.219	clear	
8	12:31	3.32	24.2	6285	1.15	238	1.21	"	
								Sampled @ 12:31	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

Total Well Volume	Actual amount of water prior to sampling	Sample time _____	Containers used _____
Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID	<u>DOI-240314_50</u>
Rinsate blank ID	_____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>24/03/14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + K.M</u>
Well ID: <u>VH-X-MW05</u>	Weather: <u>OVERCAST</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <b>Plastic</b> <b>Teflon</b>
	Pump type: <b>Peristaltic</b> <b>Submersible</b> <b>Micro-purge</b> <b>Amazon</b> <b>Other:</b>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>3.51</u> m (-) <u>1.19</u> m (=) <u>2.32</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.32</u> m (x) <u>1.96</u> (=) <u>4.54</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>10:50am</u>					Ending purge time: <u>11:15</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<del>1</del>	10:50	3.68	22.3	1198	1.51	89.2	1.320	cloudy, light brown, no odour	
2	10:52	3.52	22.3	1550	1.41	159.9	1.403	still cloudy but clearing	
3	10:55	3.48	22.2	1836	1.38	171.5	1.439	" "	
4	10:57	3.45	22.2	1974	1.18	183.6	1.458	" "	
5	11:00	3.41	22.2	2255	1.05	192	1.463	slightly cloudy	
6	11:02	3.4	22.1	2380	0.88	206	1.473	"	
7	11:04	3.39	22.1	2564	0.86	211.4	1.471	clear	
8	11:07	3.39	22.1	2889	0.77	218	1.471	"	
9	11:10	3.38	22.1	2874	0.79	225	1.48	"	
10	11:12	3.38	22.1	2989	0.89	227	1.47	" Sampled @ 11:12	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume Actual amount of water prior to sampling _____				Sample time _____		Containers used _____			
Flow rate mL/minute _____				Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA in 1 BTEX vial
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1/4/14</u>	Time: arrive <u>10:00</u> depart <u>17:30</u>
Project Name: <u>SIMPHONY IV</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>K McLean</u>
Well ID: <u>VH-X-MW06</u>	Weather: <u>FINE</u>

Equipment	
Water quality equipment description: <u>90FLMVSP-T3871</u>	Interface probe number: <u>Geotek STD 3894</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.95</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	<u>3.300</u> m (-) <u>1.136</u> m (=)	<u>2.164</u> m							
	Water Column (x) Conversion Factor (=) Litres per 1 Well Volume								
	<u>2.164</u> m (x) <u>1.96</u> (=)	<u>4.241</u> L							
Depth to product: <u>—</u> m	Product Thickness: <u>—</u> m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters								
Beginning purge time: <u>15:45</u>			Ending purge time: <u>16:03</u>					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>2</u>	<u>15:55</u>	<u>3.55</u>	<u>21.9</u>	<u>5.23</u>	<u>0.82</u>	<u>179</u>	<u>1.248</u>	<u>Turbid, no odour, orange</u>
<u>3</u>	<u>15:57</u>	<u>3.53</u>	<u>21.4</u>	<u>5.74</u>	<u>1.00</u>	<u>185</u>	<u>1.260</u>	<u>Very cloudy, no odour, orange</u>
<u>4</u>	<u>16:00</u>	<u>3.52</u>	<u>21.3</u>	<u>6.07</u>	<u>0.52</u>	<u>185</u>	<u>1.250</u>	<u>Cloudy, no odour, light brown</u>
<u>5</u>	<u>16:03</u>	<u>3.52</u>	<u>21.3</u>	<u>6.20</u>	<u>0.57</u>	<u>1.88</u>		<u>" "</u>
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

<u>5</u>	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time <u>16:04</u>	Containers used <u>5</u>
<u>330</u>	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID <u>—</u>		
Rinsate blank ID <u>—</u>		







# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/03/14</u>	Time: arrive <u>9:25</u> depart <u>10:05</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VH-X-MW08</u>	Weather: <u>PARTLY CLOUDY / SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) Water level (=) Water Column									
<u>3.284</u> m (-) <u>1.16</u> m (=) <u>2.12</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>2.12</u> m (x) <u>1.96</u> (=) <u>4.2</u> L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>9:32</u>			Ending purge time: <u>9:55</u>						
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>9:40</u>	<u>3.93</u>	<u>23.8</u>	<u>5849</u>	<u>0.52</u>	<u>115.7</u>	<u>1.28</u>	<u>clear, no odour</u>	
<u>2</u>	<u>9:45</u>	<u>3.92</u>	<u>24.4</u>	<u>5940</u>	<u>0.53</u>	<u>8.7</u>	<u>1.30</u>	<u>"</u>	
<u>3</u>	<u>9:50</u>	<u>3.96</u>	<u>24.5</u>	<u>5926</u>	<u>0.69</u>	<u>-4.8</u>	<u>1.315</u>	<u>"</u>	
<u>4</u>	<u>9:55</u>	<u>3.97</u>	<u>24.6</u>	<u>5969</u>	<u>0.67</u>	<u>-12</u>	<u>1.32</u>	<u>"</u>	
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>9:57</u>		Containers used <u>3+1+1</u>	
Flow rate mL/minute			Did field parameters stabilise?			Was the well dry purged?			
			<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			<input type="checkbox"/> Y <input checked="" type="checkbox"/> X			

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> X
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> X
Duplicate sample ID		_____
Rinsate blank ID		_____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>10:05</u> depart <u>10:50</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VH-X-MW09</u>	Weather: <u>PARTLY CLOUDY</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>3.38</u> m (-) <u>1.165</u> m (=) <u>2.21</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.21</u> m (x) <u>1.96</u> (=) <u>4.4</u> L									
Depth to product: _____ m			Product Thickness: _____ m			Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N			

Water Quality Parameters									
Beginning purge time: <u>10:12</u>					Ending purge time: <u>10:42</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	10:15	4.76	26	569	0.51	82.5	1.275	TURBID, NO ODOUR	
2	10:20	4.49	26.1	1112	0.42	92.1	1.315	" "	
3	10:26	4.19	25.8	2692	0.39	120.8	1.31	SLIGHTLY CLOUDY	
4	10:30	4.18	25.8	2875	0.42	126.3	1.305	" "	
5	10:36	4.13	25.8	3219	0.42	131.6	1.295	" "	
6	10:42	4.14	25.8	3331	0.50	132.6	1.295	V. SLIGHTLY CLOUDY	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

Total Well Volume Actual amount of water prior to sampling	Sample time <u>10:45</u>	Containers used <u>3+1+1</u>
Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		
Rinsate blank ID _____		



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>11:25</u> depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES PT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VH-X-MW10</u>	Weather: <u>PARTLY CLOUDY</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>3.510</u> m (-) <u>1.327</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) <u>1.96</u> (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>11:28</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	11:33	3.95	24.5	5612	0.49	108.2	1.355	Clear, no odour	
2	11:37	3.96	24.5	5612	0.33	113.2	1.385	" "	
3	11:42	3.98	24.5	5604	0.46	121.6	1.41	" "	
4	11:46	3.98	24.5	5610	0.54	125.4	1.42	" "	
*pH temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									

Total Well Volume Actual amount of water prior to sampling	Sample time <u>11:47</u>	Containers used <u>3+1+1</u>
Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> X

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID		_____
Rinsate blank ID		_____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25/3/14</u>	Time: arrive <u>2:12 PM</u> depart
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S.O + S.B</u>
Well ID: <u>VI-MW01</u>	Weather: <u>OVERCAST + HUMID</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>3.940</u> m (-) <u>1.050</u> m (=) <u>2.890</u> m 1 0 5 0 2 . 8 9 0									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.89</u> m (x) <u>1.96</u> (=) <u>5.7</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer:		<input type="checkbox"/> Y <input type="checkbox"/> N			

Water Quality Parameters									
Beginning purge time: <u>2:15 PM</u>					Ending purge time: <u>2:33</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	2:19	4.06	23.9	1508	3.33	160.3	1.09	VERY SLIGHTLY CLOUDY, NO ODOUR	
2	2:24	4.07	23.9	1486	3.47	180.3	1.135	"	
3	2:29	4.12	24	1417	3.27	198.8	1.170	"	
4	2:33	4.20	24	1377	3.53	194.8	1.190	"	
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume					Sample time: <u>2:34</u>				
Actual amount of water prior to sampling					Containers used: <u>3 + 1 + 1 + 1</u>				
Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA				
					Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID		_____
Rinsate blank ID		_____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01-04-14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>237947</u>
Site Location: <u>Wastes Treatment Plant</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>WI-MW02</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.000</u> m (-) <u>0.765</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID : 2.2 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>14:56</u>					Ending purge time				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1.0	14:59	5.40	24.6	405.6	4.58	-26.6	0.980	<u>clear, no odour, shear observed.</u>	
2.0	15:02	5.37	24.6	397.1	4.55	-39.4	1.015	"	
3.0	15:05	5.37	24.6	398.4	4.33	-40.0	1.025	" <u>no shear</u>	
4.0	15:08	5.36	24.6	393.0	4.36	-40.4	1.035	"	
5.0	15:11	5.39	24.6	396.8	4.07	-41.8	1.035	"	
6.0	15:14	5.39	24.6	396.8	4.18	-42.5	1.035	" <u>Sampled @ 15:15</u>	
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid <u>no odour</u> slight odour / odour / strong odour / drawdown depth									
Total Well Volume					Sample time _____ Containers used <u>5</u>				
Actual amount of water prior to sampling									
Flow rate <u>2.0L/min</u> mL/minute					Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA      Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Rinsate blank ID _____



VJ



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/2014</u>	Time: arrive <u>2:55 pm</u> depart
Project Name: <u>Vales P. Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>Katie Bristow</u>
Well ID: <u>VJ-mw01</u>	Weather: <u>overcast</u>

Equipment	
Water quality equipment description: <u>130100286 YSI</u>	Interface probe number: <u>540 3908 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	<u>1.96</u>	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
<u>8.58</u> m	(-) <u>5.54</u> m	(=) <u>3.34</u> m							
			Water Column	(x) Conversion Factor	(=) Litres per 1 Well Volume				
			<u>3.34</u> m	(x) <u>1.96</u>	(=) <u>6.54</u> L				
Depth to product: <u>—</u> m			Product Thickness: <u>0.0</u> m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Water Quality Parameters								
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): <u>8.00 mbtoc</u>	
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1L	3:00	4.73	21.6	1524	2.62	36.1	0.14	PID=0.0 no odor 5.68 5.70 5.71 5.72
2L	3:15							
3L	3:20	4.57	21.4	1590	2.00	-1808	0.16	
4L	3:25	4.53	21.3	1615	1.94	-7.5	0.17	
5L	3:30	4.51	21.3	1625	1.94	1.03	0.17	
6L	3:35	4.48	21.2	1635	1.92	12.1	0.18	
7L	3:40	4.48	21.2	1641	1.82	20.4	0.18	
8L	3:45	4.47	21.2	1649	1.78	27.4	0.18	
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth			
Total Well Volume			Actual amount of water prior to sampling			Sample time: <u>3:45 PM</u>		Containers used: <u>4</u>
<u>198</u>			Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks		
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Duplicate sample ID		_____
Rinsate blank ID		_____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>29-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>STAPHANI</u>	Project Number: <u>237747</u>
Site Location: <u>COAL STORAGE AREA</u>	Operator: <u>S. NISHALAPATI</u>
Well ID: <u>VJ-MW02</u>	Weather: <u>RAIN/FINE</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NS10.4254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	<b>Volume of water in well</b> $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>5.025</u> m (-) <u>4.075</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID - 0.6 PPM

Water Quality Parameters									
Beginning purge time: <u>12:15</u>					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	12:18	0.29	2395	6.11	-25.6	24.0	4.130	<u>Cloudy. No odour</u>	
1.0	12:21	0.07	2261	6.19	-38.8	24.0	4.155	"	
1.5	12:24	-	2262	6.20	-44.4	24.0	4.185	"	
2.0	12:27	-	2342	6.16	-43.7	24.0	4.185	"	
2.5	12:30	-	2494	6.08	-33.3	23.9	4.190	"	
3.0	12:33	-	2521	6.07	-36.4	23.9	4.200	"	
<u>Sampled @ 12:35</u>									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly <u>cloudy</u> / turbid / very turbid / <u>no odour</u> slight odour / odour / strong odour		
Total Well Volume Purged							*pH, temp, cond readings not necessary if well is purged dry		
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Y	N	NA	Was the well dry purged?	
								Y	N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	NA
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate or <u>Rinsate</u> (before/after) sample collected?	<u>Y</u>	N	

Rinsate  
RD1 - 280314 - SN @ 14:00  
Duplicate sample ID: 0





# Groundwater - Well Sampling Data Form

Job Information	
Date: 26/3/2014	Time: arrive 2:00 pm depart 2:50 pm
Project Name: Symphony IV	Project Number: 0237747
Site Location: Vales Point	Sampler: Katie Brustow
Well ID: VJ-mw03	Weather: Overcast

Equipment	
Water quality equipment description: 130100286 YSI	Interface probe number: 2403908 30m
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
7.40 m	(-) 3.95 m	(=) 3.45 m							
	Water Column	(x) Conversion Factor	(=) Litres per 1 Well Volume						
	3.45 m	(x) 1.96	(=) 6.762 L						
Depth to product:	Product Thickness: 0.0 m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N						

Water Quality Parameters									
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): 6.90 m		
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1L	2:14	5.02	22.6	3410	0.48	-125.7	0.39	PID = 1.08	Small of Sulphide
2L	2:20	5.03	22.8	3349	0.42	-129.7	0.49	PID = 0.4	4.34 m
3L	2:25	5.00	22.6	3164	0.40	-132.9	0.57	PID = 1.04	4.44
4L	2:30	4.99	22.5	3069	0.42	-137.7	0.62	PID = 1.1	4.52
5L	2:35	4.99	22.4	3060	0.52	-142.8	0.62		4.57
6L	2:40	4.99	22.4	<del>3008</del> 2855	0.58	-147.1			
*pH, temp, cond readings not necessary if well is purged dry						Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth			
Total Well Volume			Actual amount of water prior to sampling			Sample time: 2:40 pm		Containers used: 6	
Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks		
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID		_____
Rinsate blank ID		_____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/2014</u>	Time: arrive <u>12:15</u> depart <u>1:15 pm</u>
Project Name: <u>Symphony</u>	Project Number <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>K. Bristow</u>
Well ID: <u>VJ-mw04</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>130100786</u>	Interface probe number: <u>54D 3908 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>90mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	<u>1.96</u>	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
<u>7.80</u> m	(-) <u>2.90</u> m	(=) <u>4.90</u> m							
		Water Column	(x) Conversion Factor	(=) Litres per 1 Well Volume					
		<u>4.90</u> m	(x) <u>1.96</u>	(=) <u>9.604</u> L					
Depth to product: <u>0</u> m		Product Thickness: <u>0</u> m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): <u>7 to 30 mbtoc</u>		
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1L</u>	<u>12:35</u>	<u>4.44</u>	<u>20.6</u>	<u>449.1</u>	<u>3.54</u>	<u>51.0</u>	<u>0.35</u>	<u>PID=0.0</u>	<u>3.25 mbtoc</u>
<u>2L</u>	<u>12:40</u>	<u>4.46</u>	<u>20.7</u>	<u>437.7</u>	<u>3.49</u>	<u>52.7</u>	<u>0.37</u>	<u>PID=0.0</u>	<u>3.27 mbtoc</u>
<u>3L</u>	<u>12:45</u>	<u>4.38</u>	<u>20.7</u>	<u>443.0</u>	<u>2.04</u>	<u>44.7</u>	<u>0.38</u>	<u>PID=0.0</u>	<u>3.28 mbtoc</u>
<u>4L</u>	<u>12:50</u>	<u>4.35</u>	<u>20.7</u>	<u>450.0</u>	<u>1.19</u>	<u>34.5</u>	<u>0.32</u>	<u>PID=0.0</u>	<u>3.27 mbtoc</u>
<u>5L</u>	<u>12:55</u>	<u>4.33</u>	<u>20.7</u>	<u>452.2</u>	<u>0.86</u>	<u>22.8</u>	<u>0.31</u>	<u>PID=0.0</u>	
<u>6L</u>	<u>1:00</u>	<u>4.31</u>	<u>20.6</u>	<u>452.9</u>	<u>0.70</u>	<u>24.9</u>	<u>0.32</u>	<u>no odour</u>	
<u>7L</u>	<u>1:05</u>	<u>4.32</u>	<u>20.7</u>	<u>453.6</u>	<u>0.68</u>	<u>22.4</u>	<u>0.32</u>		
<u>8L</u>	<u>1:10</u>								
*pH, temp, cond readings not necessary if well is purged dry						Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth			
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>1:10 pm</u>		Containers used <u>4</u>	
Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks		
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
		Duplicate sample ID _____
		Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/2014</u>	Time: arrive <u>11:10</u> depart <u>12:10</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0287747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>Katie Bristow</u>
Well ID: <u>VJ_mw05</u>	Weather: <u>Over cast</u>

Equipment	
Water quality equipment description: <u>YSI 130100286</u>	Interface probe number: <u>540 3908 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>80mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	<u>1.96</u>	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
<u>8.78</u> m	(-) <u>6.72</u> m	(=) <u>2.06</u> m							
Water Column			(x) Conversion Factor	(=) Litres per 1 Well Volume					
<u>2.06</u> m			(x) <u>1.96</u>	(=) <u>4.0376</u> L					
Depth to product: <u>0.0</u> m	Product Thickness: <u>0.0</u> m	Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): <u>8.38mbtoc</u>		
Litres	Time	PH	Temp °C	Cond $\mu$ S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
								PID=0.0 all.	
1L	11:28	4.75	20.8	700	0.67	-1.4	0.19	-Water Brown Suspended <sup>sol</sup> <u>6.91mbtoc</u>	
2L	11:33	4.78	20.8	609	0.54	-13.9	0.30	Water Clean <u>7.02mbtoc</u>	
3L	11:37	4.82	20.8	614	0.50	-23.9	0.40	<u>7.12mbtoc</u>	
4L	11:42	4.80	20.8	602	0.46	-34.5	0.51	<u>7.23mbtoc</u>	
5L	11:47	4.77	20.7	625	0.42	-44.1	0.60	<u>7.32mbtoc</u>	
6L	11:52	4.73	20.8	682	0.36	-54.2	0.68	<u>7.40</u>	
7L	11:56	4.73	20.9	740	0.32	-61.4	<del>0.74</del> 74	<u>7.46</u>	
7.5L	12:00	4.71	20.8	803	0.32	-65.5			
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth				
Total Well Volume			Actual amount of water prior to sampling			Sample time: <u>12:00</u>		Containers used: <u>4</u>	
Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks			
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>10:10</u> depart <u>11:05</u>
Project Name: <u>Symphony</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>Katie Bristow</u>
Well ID: <u>VJ-mw06</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>451 1301002 86</u>	Interface probe number: <u>540 3908 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	<u>1.96</u>	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
<u>9.10 mbtoc</u> m	(-) <u>6.80 mbtoc</u> m	(=) <u>2.3</u> m							
	Water Column	(x) Conversion Factor	(=) Litres per 1 Well Volume						
	<u>2.3</u> m	(x) <u>1.96</u>	(=) <u>4.508</u> L						
Depth to product: <u>0.0</u> m	Product Thickness: <u>0.0</u> m	Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters								
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): <u>8.60 mbtoc</u>	
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>1L</u>	<u>10:26</u>	<u>4.98</u>	<u>21.6</u>	<u>441.8</u>	<u>2.26</u>	<u>31.4</u>	<u>0.26</u>	<u>PID=0.0</u> <u>7.06 mbtoc</u>
<u>2L</u>	<u>10:31</u>	<u>4.93</u>	<u>21.5</u>	<u>407.1</u>	<u>2.17</u>	<u>25.3</u>	<u>0.51</u>	<u>PID=0.0</u> <u>7.31</u>
<u>3L</u>	<u>10:36</u>	<u>5:00</u>	<u>21.5</u>	<u>421.3</u>	<u>2.55</u>	<u>24.0</u>	<u>0.64</u>	<u>PID=0.0</u> <u>7.44</u>
<u>4L</u>	<u>10:43</u>	<u>5:03</u>	<u>21.5</u>	<u>461.8</u>	<u>3.09</u>	<u>24.5</u>	<u>0.86</u>	<u>PID=0.0</u> <u>7.66</u>
<u>5L</u>	<u>10:48</u>	<u>5:03</u>	<u>21.5</u>	<u>481.0</u>	<u>2.99</u>	<u>21.4</u>	<u>0.97</u>	<u>PID=0.0</u> <u>7.77</u>
<u>6L</u>	<u>10:53</u>	<u>4.98</u>	<u>21.6</u>	<u>493.0</u>	<u>2.53</u>	<u>21.7</u>		<u>PID=0.0</u> <u>7.89</u>
<u>No Odour, Water Clear</u>								
*pH, temp, cond readings not necessary if well is purged dry						Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth		
Total Well Volume			Actual amount of water prior to sampling			Sample time: <u>11:00</u>		Containers used: <u>4</u>
Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

well depth 9.09

Job Information	
Date: 26/3/2014	Time: arrive 9:00 depart 10:10
Project Name: Summary IV	Project Number: 0237747
Site Location: Vales Point	Sampler: Katie Bristow
Well ID: VJ-MW07	Weather: Over Cast

Equipment	
Water quality equipment description: 451 130100286	Interface probe number: 540 3908 30m
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
8.38 m	(-) 4.81 m	(=) 3.57 m							
Water Column		(x) Conversion Factor	(=) Litres per 1 Well Volume						
3.57 m		(x) 1.96	(=) 7.0 L						
Depth to product:	0 m	Product Thickness:	0 m	Verified with Bailer:		Y <input checked="" type="radio"/> N			

Water Quality Parameters									
Beginning purge time:			Ending purge time:				Pump Intake Depth (mbtoc): 7.88mbtoc		
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1L	9:19	5.07	22.2	236	6.47	-17.3	-0.53	PID=0.0	6:05 mbgl
2L	9:23	5.05	22.1	260.5	7.14	-5.6	-0.62	PID=0.0	6:14
3L	9:28	5.24	22.1	259.3	6.14	0.7	-0.63	PID=0.0	6:15
4L	9:34	5.43	22.1	248.0	5.74	6.0	-0.68	PID=0.0	6:20
5L	9:40	5.18	22.2	256.2	5.8	16.1	-0.69	PID=0.0	6:21
6L	9:45	5.15	22.2	254.2	5.57	28.5	-0.72	PID=0.0	6:24
7L	9:50	5.04	22.0	246.6	3.60	22.9	-0.67	PID=0.0	6:16
8L	9:55	4.94	21.9	244.9	3.03	22.3	-0.67	PID=0.0	6:19
9L	10:00	4.93	21.8	244.5	3.10	22.8	-0.69	PID=0.0	No Odour 6:21
10L	10:05	4.94	21.8	243.4	3.36	24.8	-0.75	PID=0.0	Water Clear 6:27
*pH, temp, cond readings not necessary if well is purged dry				Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth					
Total Well Volume			Actual amount of water prior to sampling			Sample time: 10:00		Containers used: 4	
Flow rate			mL/minute			Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		Was the well dry purged? <input checked="" type="radio"/> Y <input type="radio"/> N	
0.217 L/min									

Field QC Checks			
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> NA
Duplicate sample collected?	<input checked="" type="radio"/> Y	<input type="radio"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input checked="" type="radio"/> Y	<input type="radio"/> N	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>4:00pm</u> depart
Project Name: <u>Symphony IV</u>	Project Number: <u>02 0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>Kate Bristow</u>
Well ID: <u>VJ-mw08</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>USI 130100286</u>	Interface probe number: <u>5403908 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.49	<u>1.96</u>	7.85	12.3	17.7	31.4	49.1	70.7	
Total Well Depth	(-) Water level	(=) Water Column							
<u>6.54</u> m	(-) <u>5.02</u> m	(=) <u>1.52</u> m							
	Water Column	(x) Conversion Factor	(=) Litres per 1 Well Volume						
	<u>1.52</u> m	(x) <u>1.96</u>	(=) <u>3</u> L						
Depth to product: <u>0</u> m	Product Thickness: <u>0.0</u> m	Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N							

Water Quality Parameters								
Beginning purge time			Ending purge time				Pump Intake Depth (mbtoc): <u>6.00m</u>	
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>1L</u>	<u>4:11</u>	<u>4.96</u>	<u>22.2</u>	<u>534</u>	<u>3.74</u>	<u>-40.0</u>	<u>0.27</u>	<u>PID = 0.0</u> <u>No Odour</u>
<u>2L</u>	<u>4:16</u>	<u>4.99</u>	<u>22.1</u>	<u>534</u>	<u>3.70</u>	<u>-38.2</u>	<u>0.33</u>	<u>5.24 mbtoc</u>
<u>3L</u>	<u>4:21</u>	<u>4.95</u>	<u>22.1</u>	<u>537</u>	<u>3.81</u>	<u>-36.6</u>	<u>0.55</u>	<u>5.35 mbtoc</u>
<u>4L</u>	<u>4:26</u>	<u>4.95</u>	<u>21.9</u>	<u>533</u>	<u>3.78</u>	<u>-34.1</u>	<u>0.72</u>	<u>5.57</u>
<u>5L</u>	<u>4:31</u>	<u>4.93</u>	<u>21.9</u>	<u>529</u>	<u>3.78</u>	<u>-34.0</u>		<u>5.79</u> <u>5.90</u>
*pH, temp, cond readings not necessary if well is purged dry						Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth		
Total Well Volume			Actual amount of water prior to sampling			Sample time: <u>4:30pm</u>		Containers used: <u>4</u>
<u>197</u>			Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaned sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: 29.03.14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 23747
Site Location: COAL STORAGE AREA	Operator: S. NUTHALAPATI
Well ID: VJ-MW09	Weather: RAIN/FINE

Equipment	
Water quality equipment description:	
Interface probe number: NS104254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ $r = \text{radius in m}$ $h = \text{height of water column in m}$									
Total Well Depth (-) Water level (=) Water Column <u>6.735</u> m (-) <u>5.720</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
PID: 1-2 PPM									

Water Quality Parameters									
Beginning purge time: 13:37					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.7	13:44	0.25	2968	5.59	-10.4	21.4	5.850	Turbid - Light yellow. No odour. Sheen observed.	
1.2	13:48	0.30	2953	5.52	-4.7	21.6	5.920	"	
1.7	13:50	0.31	2961	5.41	-7.7	21.6	5.980	" NO SHEEN	
2.2	13:53	0.52	2975	5.42	-3.0	21.5	6.060	" "	
2.7	13:56	0.47	2993	5.44	-20.8	21.5	6.105	" "	
3.2	13:59	0.45	3017	5.45	-29.3	21.4	6.125	" "	
3.7	14:02	0.50	3048	5.47	-41.3	21.4	6.155	" "	
Sampled @ 14:04									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour		
Total Well Volume Purged							*pH, temp, cond readings not necessary if well is purged dry		
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Y <input checked="" type="radio"/> N <input type="radio"/> NA <input type="radio"/>		Was the well dry purged?		
					Y <input type="radio"/> N <input checked="" type="radio"/>				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N
Duplicate sample ID	

Redox hasn't stabilised



# Groundwater - Well Sampling Data Form

Job Information	
Date: 9 <sup>th</sup> 03-14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237707
Site Location: COAL STORAGE AREA	Operator: S. NUTHALAPATI
Well ID: VT-04210	Weather: RAIN/FINE

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 6.625 m (-) 1.780 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.1 PPM

Water Quality Parameters										
Beginning purge time: 12:58					Ending purge time:					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments		
1.0	13:02	0.03	1847	6.12	103.1	22.7	1.780	Very turbid - light orange NO odour.		
2.0	13:06	-	1845	6.10	102.5	22.7	1.780	"		
3.0	13:10	-	1839	6.10	90.9	22.6	1.780			
4.0	13:14	-	1840	6.10	95.1	22.6	1.805			
5.0	13:18	-	1836	6.10	97.4	22.5	1.805			
6.0	13:22	-	1835	6.11	74.8	22.5	1.805			
								Sampled @ 13:24		
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	<b>Example Comments:</b> clear / slightly cloudy / turbid / <u>very turbid</u> / no odour / slight odour / odour / strong odour			
<b>Total Well Volume Purged</b> Final amount of water purged prior to sampling 250ml/mi-1							*pH, temp, cond readings not necessary if well is purged dry			
Did field parameters stabilise?					Y	N	NA	Was the well dry purged?		

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	Y N
Was pre-cleaning sampling equipment properly protected from contamination?	Y N NA
Was documentation of equipment conducted?	Y N NA
Were air bubbles present in vials at time of collection?	Y N NA
Was sample for metals field filtered prior to preservations?	Y N NA
Duplicate or Rinsate (before/after) sample collected?	Y N

Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>27-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SIMPSONY</u>	Project Number: <u>237707</u>
Site Location: <u>COAL STORAGE AREA</u>	Operator: <u>S-NUTHALAPATI</u>
Well ID: <u>VK-m002</u>	Weather: <u>RAIN</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NSW 4254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>8.010</u> m (-) <u>4.049</u> (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters										
Beginning purge time: <u>11:41</u>					Ending purge time: _____					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments		
0.5	11:45	1.44	432.5	5.28	255.8	22.5	4.120	<u>Clear - no odour</u>		
1.0	11:49	1.33	402.4	5.26	301.7	22.6	4.160	"		
1.5	11:52	1.19	400.4	5.24	293.9	22.5	4.165	"		
2.0	11:55	1.06	357.0	5.22	253.2	22.5	4.190	"		
2.5	11:58	0.90	392.5	5.20	266.0	22.5	4.200	"		
3.0	12:01	0.74	386.4	5.19	251.7	22.4	4.205	"		
3.5	12:04	0.62	382.0	5.16	243.9	22.4	4.210	"		
								<u>Sampled @ 12:05</u>		
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / (no odour) / slight odour / odour / strong odour			
Total Well Volume Purged _____ Final amount of water purged prior to sampling _____							*pH, temp, cond readings not necessary if well is purged dry			
Did field parameters stabilise?					Y	N	NA	Was the well dry purged?		

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<u>Redox hasn't stabilised</u>  Duplicate sample ID: <u>Do1_270314-SN @ 12:00</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA	
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA	
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y	<input checked="" type="radio"/> N <input type="radio"/> NA	
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA	
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="radio"/> Y	<input type="radio"/> N	







# Groundwater - Well Sampling Data Form

Job Information	
Date: 29-03-14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 237747
Site Location: COAL STORAGE AREA	Operator: S. NITHALAPATI
Well ID: VIK-MW3	Weather: RAIN

Equipment	
Water quality equipment description:	
Interface probe number: NS104254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 6.030 m (-) 3.745 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters								
Beginning purge time: 7:33					Ending purge time:			
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
0.6	7:36	1.46	237.8	5.42	231.3	23.4	3.830	clear, no odour, screen observed.
1.2	7:39	1.20	232.1	5.40	237.5	23.6	3.860	"
1.8	7:42	1.37	228.1	5.39	235.1	23.5	3.900	"
2.4	7:45	1.63	227.0	5.39	226.2	23.5	3.930	"
3.0	7:48	1.66	226.3	5.38	219.5	23.3	3.965	"
3.6	7:51	1.72	224.4	5.35	212.3	23.5	3.990	"
Sampled C 7:52								

Stabilisation Criteria	+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour
Total Well Volume Purged						*pH, temp, cond readings not necessary if well is purged dry
Final amount of water purged prior to sampling						
Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA						Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>29-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SIMPHONY</u>	Project Number: <u>237747</u>
Site Location: <u>COAL STORAGE AREA</u>	Operator: <u>S. NUTHALAPATI</u>
Well ID: <u>VK-MW4</u>	Weather: <u>RAIN</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NSW 4254</u>	
Purging equipment: (please circe)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	<b>Volume of water in well</b> $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>6.130</u> m (-) <u>4.070</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <u>PID - 0.1 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>08:08</u>					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
<u>0.5</u>	<u>8:11</u>	<u>0.72</u>	<u>442.9</u>	<u>5.35</u>	<u>246.0</u>	<u>22.6</u>	<u>4.115</u>	<u>Clear - no odours</u>	
<u>1.0</u>	<u>8:14</u>	<u>0.52</u>	<u>451.6</u>	<u>5.33</u>	<u>227.9</u>	<u>22.4</u>	<u>4.140</u>	"	
<u>1.5</u>	<u>8:17</u>	<u>0.70</u>	<u>454.6</u>	<u>5.31</u>	<u>223.3</u>	<u>22.6</u>	<u>4.160</u>	"	
<u>2.0</u>	<u>8:20</u>	<u>1.23</u>	<u>456.6</u>	<u>5.30</u>	<u>220.2</u>	<u>22.7</u>	<u>4.190</u>	"	
<u>2.5</u>	<u>8:23</u>	<u>1.45</u>	<u>455.7</u>	<u>5.30</u>	<u>222.3</u>	<u>22.7</u>	<u>4.200</u>	"	
<u>3.0</u>	<u>8:26</u>	<u>1.51</u>	<u>456.1</u>	<u>5.31</u>	<u>224.6</u>	<u>22.8</u>	<u>4.220</u>	"	
								<u>Sampled @ 8:28</u>	
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid <u>no odour</u> slight odour / odour / strong odour		

<b>Total Well Volume Purged</b> Final amount of water purged prior to sampling	*pH, temp, cond readings not necessary if well is purged dry Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA      Was the well dry purged? <input checked="" type="radio"/> Y <input type="radio"/> N
---	--

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N      Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>28.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>SUMPHONT</u>	Project Number: <u>237747</u>
Site Location: <u>COAL STORAGE AREA</u>	Operator: <u>S. NISHALAPATI</u>
Well ID: <u>JK-MW05</u>	Weather: <u>RAIN</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>N504254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	<b>Volume of water in well</b> $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>8.355</u> m (-) <u>5.145</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <u>PID - 0.5 PPM</u>									

Water Quality Parameters								Comments
Beginning purge time:	Ending purge time:							
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	
0.5	11:07	2.44	2697	4.38	293.7	25.3	5.200	Turbid. light orange. No odour
1.1	11:10	2.78	2577	4.42	268.2	25.4	5.220	"
1.7	11:13	2.30	2552	4.40	271.4	25.3	5.250	"
2.3	11:16	2.10	2618	4.32	272.4	23.1	5.260	"
2.9	11:19	2.00	2619	4.37	274.4	23.2	5.275	"
3.5	11:22	1.93	2634	4.37	274.5	23.2	5.280	"
4.1	11:25	1.82	2648	4.36	275.3	23.2	5.285	"
								Sampled @ 11:26

<b>Stabilisation Criteria</b> +/- 0.3ppm    +/- 3%    +/- 0.1    +/- 10mV    +/- 10%	<b>Example Comments:</b> clear / slightly cloudy / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour
<b>Total Well Volume Purged</b> Final amount of water purged prior to sampling <u>4.1 L</u>	*pH, temp, cond readings not necessary if well is purged dry
Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA	Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N

*1 1/4 inch hard tubing dropped in to the well. It's around 7.5m long. It's not obstructing IP Probe or 1/4 inch tubing for future sampling.*





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>28-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>STOPHANT</u>	Project Number: <u>237747</u>
Site Location: <u>COAL STORAGE AREA</u>	Operator: <u>S.N</u>
Well ID: <u>JK MW06</u>	Weather: <u>RAIN</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NS10 U254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	<b>Volume of water in well</b> $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>7.085</u> m (-) <u>4.265</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <u>PID: 0.2 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>10:15</u>								Ending purge time:	
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	10:18	2.87	2783	4.25	427.1	22.9	4.320	Turbid - light grey - no odour.	
1.0	10:21	2.78	2735	4.20	436.5	22.9	4.340	"	
1.5	10:24	2.61	2694	4.17	436.5	23.1	4.375	"	
2.0	10:27	2.79	2724	4.15	437.4	23.1	4.380	"	
2.5	10:30	2.55	2779	4.14	440.9	23.1	4.390	"	
3.0	10:33	2.47	2848	4.12	442.3	23.1	4.395	"	
"								Sampled @ 10:34	
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour		

<u>3.0</u>	<b>Total Well Volume Purged</b> Final amount of water purged prior to sampling	<i>*pH, temp, cond readings not necessary if well is purged dry</i>
Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y	<input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="radio"/> Y	<input type="radio"/> N

Duplicate sample ID: DO1\_280314-SN



# Groundwater - Well Sampling Data Form

Job Information	
Date: 28-03-14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237747
Site Location: COAL STORAGE AREA	Operator: S. NUTHALAPATI
Well ID: VIK-MW07B	Weather: RAIN

Equipment	
Water quality equipment description:	
Interface probe number: NSU0 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	25mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 6.335 m (-) 4.215 m (=) _____ m 4.350 m (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters								Comments
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	
0.6	9:20	18.93	1.9	5.83	803.0	20.1	4.290	
0.6	9:27	16.16	1.2	5.82	782.9	20.1	4.350	S.N
0.2	9:30	0.16	6044	5.33	100.6	21.5	4.380	Turbid. light orange. no odour
1.8	9:33	0.11	6135	5.40	44.8	21.6	4.420	" "
2.4	9:36	0.06	6145	5.43	28.9	21.6	4.460	
3.0	9:39	0.02	6143	5.44	15.2	21.5	4.500	
3.6	9:42	0.07	6148	5.44	11.8	21.5	4.515	
4.2	9:45	0.04	6141	5.44	10.8	21.5	4.530	Sampled @ 9:45

Beginning purge time: 9:17 24	Ending purge time:
Stabilisation Criteria +/- 0.3ppm +/- 3% +/- 0.1 +/- 10mV +/- 10%	Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour
Total Well Volume Purged Final amount of water purged prior to sampling	*pH, temp, cond readings not necessary if well is purged dry Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Redox hasn't stabilised



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1/4/14</u>	Time: arrive <u>1000</u> depart <u>17:30</u>
Project Name: <u>SYMPHONY IV</u>	Project Number: <u>0237747</u>
Site Location: <u>VACES POINT.</u>	Sampler: <u>K. McLEAN</u>
Well ID: <u>VL-MW01</u>	Weather: <u>FINE</u>

Equipment	
Water quality equipment description: <u>90 FLMUSP</u>	Interface probe number: <u>Geotech SVD 3894.</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.667</u> m (-) <u>3.220</u> m (=) <u>3.447</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.447</u> m (x) <u>1.96</u> (=) <u>6.756</u> L									
Depth to product: <u>—</u> m		Product Thickness: <u>—</u> m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>12:56</u>			Ending purge time: <u>13:13</u>						
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>12:58</u>	<u>5.68</u>	<u>23.7</u>	<u>300</u>	<u>4.42</u>	<u>123</u>	<u>3.363</u>	<u>Very cloudy, light brown, no odour.</u>	
<u>2</u>	<u>13:02</u>	<u>5.46</u>	<u>23.1</u>	<u>294</u>	<u>4.07</u>	<u>110</u>	<u>3.509</u>	<u>" "</u>	
<u>3</u>	<u>13:05</u>	<u>5.46</u>	<u>22.4</u>	<u>295</u>	<u>3.87</u>	<u>120</u>	<u>3.656</u>	<u>Cloudy, light brown, no odour.</u>	
<u>4</u>	<u>13:07</u>	<u>5.51</u>	<u>22.5</u>	<u>292</u>	<u>3.57</u>	<u>113</u>	<u>3.722</u>	<u>" "</u>	
<u>5</u>	<u>13:10</u>	<u>5.47</u>	<u>22.8</u>	<u>287</u>	<u>3.89</u>	<u>115</u>	<u>3.838</u>	<u>Slightly cloudy, #, no odour.</u>	
<u>6</u>	<u>13:13</u>	<u>5.48</u>	<u>22.6</u>	<u>292</u>	<u>3.81</u>	<u>117</u>		<u>Clear, no odour.</u>	
*pH, temp, cond readings not necessary if well is purged dry							Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth		
<u>6.</u>	Total Well Volume		Actual amount of water prior to sampling				Sample time <u>13:14</u>	Containers used <u>5</u>	
<u>330.</u>	Flow rate mL/minute		Did field parameters stabilise?				<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample ID		<u>0237747-12</u>
Rinsate blank ID		<u>—</u>





# Groundwater - Well Sampling Data Form

Job Information	
Date: 1/4/14	Time: arrive 10:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT.	Sampler: K. McLean
Well ID: VL MWO2	Weather: FINE

Equipment	
Water quality equipment description: 90 FLM VSP	Interface probe number: Geotech - SYD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>7.839</u> m (-) <u>3.080</u> m (=) <u>4.759</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>4.759</u> m (x) <u>1.96</u> (=) <u>9.328</u> L									
Depth to product: <u>—</u> m	Product Thickness: <u>—</u> m	Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time: 11:37 <sup>us</sup>					Ending purge time: 12:06				
Litres	Time	PH	Temp °C	Cond <sup>µS</sup> mS/cm	DO <sup>ppm</sup> mg/L	Redox mV	Drawdown <10cm	Comments	
1.	11:41	5.56	26.5	5.2	5.90	86	—	Cloudy, no odour, light grey/brown.	
2.	11:45	5.55	22.2	1037	4.62	76	3.803	Cloudy, no odour, light brown	
3.	11:48	5.48	21.4	1037	4.71	75	3.961	Cloudy, no odour, light brown	
4.	11:51	5.49	21.0	1033	4.44	76	4.079	Cloudy, no odour, light brown	
5.	11:54	5.51	21.5	1034	4.41	75	3.943	" "	
6.	11:57	5.45	21.4	1028	3.92	74	3.955	" "	
7.	12:00	5.41	21.4	1013	3.92	73	—	S/Cloudy, no odour, light brown.	
8.	12:03	5.37	21.3	1012	3.43	76	5.964	" "	
9.	12:06	5.36	21.2	998	3.43	76	—	" "	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

<u>9</u>	Total Well Volume Actual amount of water prior to sampling	Sample time <u>12:07</u>	Containers used <u>4 5</u>
<u>336</u>	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID <u>—</u>
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID <u>—</u>



# Groundwater - Well Sampling Data Form

Job Information	
Date: 1/4/14	Time: arrive 10:00 depart 17:30
Project Name: SYMPHONY	Project Number: 0237747
Site Location: VALES POINT.	Sampler: K. MCLEAN
Well ID: VL_MW03.	Weather: FINE

Equipment	
Water quality equipment description: 90FLMVSP T3871 Interface probe number: Geotech - SYD 3894.	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 6.608 m (-) 6.365 m (=) 0.243 m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume 0.243 m (x) 1.96 (=) 0.476 L									
Depth to product: — m		Product Thickness: — m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: 10:48					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.700	11:11	6.11	20.4	517	5.780	100	✓	No odour, cloudy, light brown.	
<p>Note: Insufficient water for micro-purge to remove sample. Switched to bailer. Well purged dry. Left to recharge. Sample taken @ 12:26. Insufficient water for full sample left to recharge again @ 12:40. Return @ 13:35 well has not recharged sufficiently for a sample. Depth to water: 6.590 - sample next day.</p>									
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth				
0.700	Total Well Volume Actual amount of water prior to sampling			Sample time 12:26			Containers used 5		
NA.	Flow rate mL/minute			Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA			Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID _____
Rinsate blank collected?	Y	N	Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31/3/14</u>	Time: arrive <u>0700</u> depart <u>18:30</u>
Project Name: <u>SYMPHONY IV</u>	Project Number: <u>0237747</u>
Site Location: <u>VACES POINT</u>	Sampler: <u>K. MCLEAN</u>
Well ID: <u>VM-MW04</u>	Weather: <u>Overcast</u>

Equipment	
Water quality equipment description: <u>YSI 11F107305</u>	Interface probe number: <u>Geotech - SYD 3894</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>4.008</u> m (-) <u>1.849</u> m (=) <u>2.159</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.159</u> m (x) <u>1.96</u> (=) <u>4.232</u> L									
Depth to product: <u>—</u> m		Product Thickness: <u>—</u> m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>15:08</u> us					Ending purge time: <u>15:21</u>				
Litres	Time	PH	Temp °C	Cond $\mu\text{S}/\text{cm}$	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	15:05	5.30	24.5	983	68.75	30.6	1.905	Very cloudy, grey, no odour.	
2	15:07	5.25	24.5	902	58.20	48.2	1.957	" "	
3	15:09	5.19	24.6	893	53.59	47.4	2.003	" "	
4	15:12	5.10	24.5	882	48.22	60.2	—	Cloudy, grey, no odour.	
5	15:16	5.07	24.4	892	43.11	53.3	2.005		
6	15:20	5.08	24.3	895	48.15	45.1	—	" "	
*pH, temp, cond readings not necessary if well is purged dry <span style="float: right;">Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth</span>									

<u>6</u>	Total Well Volume	Sample time <u>15:22</u>	Containers used <u>5</u>
<u>~330</u>	Actual amount of water prior to sampling	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID <u>—</u>
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID <u>—</u>



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>11:15</u> depart <u>12:15</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VM-MW01</u>	Weather: <u>OVERCAST + COOL</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.17</u> m (-) <u>2.287</u> m (=) <u>3.88</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.88</u> m (x) <u>1.96</u> (=) <u>7.6</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer:			<input type="checkbox"/> Y <input type="checkbox"/> N		

Water Quality Parameters								
Beginning purge time: <u>11:32</u>			Ending purge time: <u>11:56</u>					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	11:38	5.25	23.2	1294	1.36	51.3	2.52	slightly cloudy, no odour
2	11:41	5.18	23.2	1283	1.70	65.8	2.635	" "
3	11:48	5.17	23.4	1286	1.66	58.4	2.805	" "
4	11:55	5.15	23.7	1296	1.92	65.1	2.975	" "
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>12:00 PM</u> Containers used <u>3+1+1+1</u>		
Flow rate mL/minute			Did field parameters stabilise?			Was the well dry purged?		
			<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			<input type="checkbox"/> Y <input checked="" type="checkbox"/> N		

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Duplicate sample ID		_____	
Rinsate blank ID		_____	





VN



# Groundwater - Well Sampling Data Form

Job Information	
Date: 25.03.14	Time: arrive depart
Project Name: SIMPHONY	Project Number: 237747
Site Location: MANDALONG	Operator: S. NUTHALAPATI
Well ID: VN-MW01	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ r = radius in m h = height of water column in m									
Total Well Depth (-) Water level (=) Water Column 7.930 m (-) 4.170 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
PID: 0.18PPM									

Water Quality Parameters									
Beginning purge time: 8:12					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond ( $\mu$ S/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	8:16	4.39	291.6	5.26	311.2	19.8	4.255	Slightly cloudy - no odour	
1.0	8:19	4.52	295.8	5.24	309.5	20.0	4.300	"	
1.5	8:22	4.22	295.4	5.25	306.8	20.0	4.365	"	
2.0	8:25	4.50	295.5	5.26	305.7	20.0	4.400	"	
2.5	8:28	4.42	295.3	5.27	303.3	20.0	4.445	"	
3.0	8:31	4.44	294.0	5.29	299.9	20.1	4.470	"	
3.5	8:34	4.29	291.5	5.30	297.0	20.1	4.500	"	
								Sampled @ 8:35	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour		
Total Well Volume Purged							*pH, temp, cond readings not necessary if well is purged dry		
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Y	N	NA	Was the well dry purged?	
								Y	N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>25.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>S-MAPHANT</u>	Project Number: <u>237747</u>
Site Location: <u>MANDALONG</u>	Sampler: <u>S. NUTHALAYATI</u>
Well ID: <u>VN-MW02</u>	Weather: <u>CLOUDY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>7.4755</u> m (-) <u>2.145</u> m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID: 0.1ppm</u>									

Water Quality Parameters									
Beginning purge time: <u>8:53</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.5</u>	<u>8:56</u>	<u>5.70</u>	<u>22.9</u>	<u>205.2</u>	<u>5.13</u>	<u>270.2</u>	<u>2.210</u>	<u>Clear. No odour.</u>	
<u>1.0</u>	<u>8:59</u>	<u>5.70</u>	<u>22.9</u>	<u>204.6</u>	<u>5.03</u>	<u>269.1</u>	<u>2.250</u>	" "	
<u>1.5</u>	<u>9:02</u>	<u>5.70</u>	<u>22.9</u>	<u>202.9</u>	<u>5.03</u>	<u>269.9</u>	<u>2.305</u>	" "	
<u>2.0</u>	<u>9:05</u>	<u>5.70</u>	<u>23.0</u>	<u>202.4</u>	<u>5.11</u>	<u>265.5</u>	<u>2.370</u>	" "	
<u>2.5</u>	<u>9:08</u>	<u>5.71</u>	<u>23.1</u>	<u>202.6</u>	<u>5.10</u>	<u>263.3</u>	<u>2.405</u>	" "	
<u>3.0</u>	<u>9:11</u>	<u>5.76</u>	<u>23.2</u>	<u>207.2</u>	<u>5.24</u>	<u>258.6</u>	<u>2.450</u>	" "	
<u>Sampled @ 9:12</u>									
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth									

Total Well Volume	Actual amount of water prior to sampling	Sample time	Containers used
Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>Duplicate:</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>DOI-250314-SN @ 9:00</u>
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: 23.03.14	Time: arrive _____ depart _____
Project Name: SHIMPHONY	Project Number: 233747
Site Location: 1 RAIL UNLOADER	Operator: S. NUTHALAPATI
Well ID: VN-MW # 3	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number:	NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ $r = \text{radius in m}$ $h = \text{height of water column in m}$									
Total Well Depth (-) Water level (=) Water Column 14.680 m (-) 8.840 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
PID: 0.2 PPM									

Water Quality Parameters								
Beginning purge time: 9.08					Ending purge time:			
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
0.5	9:14	1.54	1005	6.18	187.3	20.7	9.045	Clear - no odour.
1.0	9:19	1.35	1005	6.19	186.9	20.6	9.210	" "
1.5	9:24	1.30	1004	6.20	184.3	20.6	9.345	" "
2.0	9:29	1.42	1001	6.18	166.8	20.6	9.440	
2.5	9:34	1.46	1000	6.18	167.1	20.6	9.510	
3.0	9:39	1.54	1000	6.19	139.3	20.7	9.550	
Sampled @ 9:40								
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour	

3.0L	Total Well Volume Purged	*pH, temp, cond readings not necessary if well is purged dry
100ml/min	Final amount of water purged prior to sampling	
Did field parameters stabilise?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA	Was the well dry purged?
		Y <input checked="" type="radio"/> N <input checked="" type="radio"/>

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	Duplicate: VN-DO1-230314-SN @ 9:00 Redox <del>to sample</del> hasn't stabilised.
Was pre-cleaning sampling equipment properly protected from contamination?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA	
Was documentation of equipment conducted?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA	
Were air bubbles present in vials at time of collection?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA	
Was sample for metals field filtered prior to preservations?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA	
Duplicate or Rinsate (before/after) sample collected?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
		Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 23.03.14	Time: arrive _____ depart _____
Project Name: STHOPHONT	Project Number: 233247
Site Location: RAIL UNLOADER	Operator: S. NUTHALAPATI
Well ID: VN-01005	Weather: SHOWERS

Equipment	
Water quality equipment description:	
Interface probe number: NISW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>8.345</u> m (-) <u>3.410</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters									
Beginning purge time: 14:41					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	14:44	0.40	183.7	4.46	342.9	20.4	3.520	cloudy. no odour.	
1.0	14:48	0.33	183.4	4.45	343.7	20.3	3.550	" "	
1.5	14:50	0.32	185.2	4.46	341.2	20.2	3.590	" "	
2.0	14:53	0.38	182.9	4.47	339.3	20.1	3.590	" "	
2.5	14:56	0.43	182.5	4.47	338.3	20.1	3.590	" "	
3.0	14:59	0.52	182.0	4.48	337.4	20.0	3.595	" "	
								Sampled @ 15:00	
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour		

Total Well Volume Purged Final amount of water purged prior to sampling	*pH, temp, cond readings not necessary if well is purged dry Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA	Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N
--	---	---

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>23.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>237747</u>
Site Location: <u>RAIL UNLOADER</u>	Operator: <u>S. KUNTHALAPATI</u>
Well ID: <u>MWH076</u>	Weather: <u>RAIN</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NSW 4254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ $r = \text{radius in m}$ $h = \text{height of water column in m}$									
Total Well Depth (-) Water level (=) Water Column <u>12.260</u> m (-) <u>7.320</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
PID: <u>2.1 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>12:55</u>					Ending purge time: _____				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	12:59	0.36	538	6.43	-20.2	19.7	7.530	Slightly cloudy. No odour.	
1.0	13:04	0.31	535	6.49	-25.0	19.7	7.730	"	
1.5	13:08	0.46	533	6.53	-44.1	19.8	7.855	Clear.	
2.0	13:13	0.69	518	6.56	-10.7	19.8	7.970	"	
2.5	13:18	0.94	510	6.57	5.7	19.7	8.100	"	
3.0	13:23	1.06	512	6.59	13.5	19.7	8.200	"	
3.5	13:26	1.20	498.5	6.60	20.5	19.6	8.270	"	
3.6	13:29	1.33	498.1	6.60	17.0	19.6	8.320	"	
Sampled @ 13:30									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour		
Total Well Volume Purged					*PH, temp, cond readings not necessary if well is purged dry				
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Was the well dry purged?				
Y N NA					Y <input checked="" type="checkbox"/>				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA <u>Drawdown hasn't stabilised.</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID

NO. OF BOTTLES: 4  
 P&C: A, B, C, D, N



# Groundwater - Well Sampling Data Form

Job Information	
Date: 23.03.14	Time: arrive _____ depart _____
Project Name: SHOPHANT	Project Number: 237747
Site Location: RAIL UNLOADER	Operator: S. NITHALAKATI
Well ID: JN-MW07	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number:	NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	$V = \delta \times r^2 \times h$
Conversion Factor (volume L/m)	0.93	2.73	5.06	6.68	10.8	10.8	14.2	20.2	V = volume in litres
$\delta = 3.142$ $r = \text{radius in m}$ $h = \text{height of water column in m}$									
Total Well Depth (-) Water level (=) Water Column 11.760 m (-) 7.590 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters									
Beginning purge time: 11:37					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond ( $\mu\text{S/cm}$ )	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	11:41	0.34	635	6.04	-74.6	19.5	7.790	Turbid - light green. No odour	
1.0	11:44	0.32	622	6.06	-94.4	19.4	7.990	"	
1.5	11:48	0.77	569	5.96	-23.5	19.5	8.150	"	
2.0	11:52	1.13	528	5.85	23.7	19.6	8.150	"	
2.5	11:56	1.12	592.4	5.75	54.6	19.5	8.245	"	
3.0	12:00	1.03	474.8	5.70	62.2	19.5	8.320	Slightly cloudy. No odour	
3.5	12:04	0.88	466.2	5.69	77.2	19.5	8.360	"	
4.0	12:08	0.79	458.5	5.63	58.9	19.5	8.410	"	
								Sampled @ 12:10	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / <u>slightly cloudy</u> / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour		

Total Well Volume Purged	*pH, temp, cond readings not necessary if well is purged dry
Final amount of water purged prior to sampling	
Did field parameters stabilise?	Y <input checked="" type="radio"/> N <input checked="" type="radio"/> NA <input type="radio"/>
Was the well dry purged?	Y <input type="radio"/> N <input checked="" type="radio"/>

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA <i>Cond hasn't stabilised</i>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	Y <input type="radio"/> N <input checked="" type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	Y <input checked="" type="radio"/> N <input type="radio"/> NA Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>23-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SILOPHON 1</u>	Project Number: <u>237747</u>
Site Location: <u>RAIL UNLOAD</u>	Operator: <u>S. NUNIALAPA</u>
Well ID: <u>VN-MW08</u>	Weather: <u>cloudy</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>MSW 4254</u>	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>7.060</u> m (-) <u>3.390</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID 0.2ppm

Water Quality Parameters									
Beginning purge time: <u>10:14</u>					Ending purge time: _____				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	10:17	0.72	348.4	5.84	200.5	22.4	3.440	Clear - no odour	
1.0	10:20	0.59	341.5	5.75	207.8	22.3	3.480	" "	
1.5	10:23	0.50	340.4	5.73	210.1	22.4	3.515	" "	
2.0	10:27	0.60	336.9	5.70	213.0	22.5	3.540	" "	
2.5	10:29	0.70	336.2	5.69	213.4	22.5	3.560	" "	
3.0	10:32	0.83	333.8	5.69	215.0	22.5	3.580	" "	
3.5	10:35	0.84	333.2	5.69	215.2	22.5	3.590	" "	
Sampled @ 10:36									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour		
Total Well Volume Purged		*pH, temp, cond readings not necessary if well is purged dry							
Final amount of water purged prior to sampling									
Did field parameters stabilise?					<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		Was the well dry purged?		<input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 23.03.14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 232247
Site Location: RAIL UNLOADER	Operator: S. NUTHALAPATI
Well ID: VN-MW09	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number:	N504254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 8.810 m (-) 4.410 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters										
Beginning purge time: 10.51					Ending purge time:					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (°C)	DTW (mb TOC)	Comments		
0.5	10:54	1.61	173.4	5.03	244.5	20.6	4.530	light orange turbid - no odour		
1.0	10:58	1.46	168.1	4.95	262.9	20.5	4.570	"		
1.5	11:01	1.45	168.0	4.93	268.0	20.4	4.615	"		
2.0	11:04	1.43	168.2	4.93	270.3	20.2	4.645	"		
2.5	11:07	1.52	169.4	4.93	269.4	20.2	4.675	"		
3.0	11:10	1.45	170.7	4.93	269.2	20.0	4.690	"		
3.5	11:13	1.53	172.3	4.92	269.7	20.0	4.715	"		
								Sampled @ 11:14		
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / no odour / slight odour / odour / strong odour			
3.5L		Total Well Volume Purged					*pH, temp, cond readings not necessary if well is purged dry			
		Final amount of water purged prior to sampling					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA           Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Rinsate:  
VN-R02-230314-SN @ 10:00

Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>23.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>SIMPSON</u>	Project Number: <u>237747</u>
Site Location: <u>RAIL UNLOADER</u>	Operator: <u>S. NUTHALATI</u>
Well ID: <u>VN-DASH 12</u>	Weather: _____

Equipment	
Water quality equipment description:	
Interface probe number:	<u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) <u>5.735</u> m (-) Water level (=) <u>3.245</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.1PPM

Water Quality Parameters									
Beginning purge time: <u>14:01</u>					Ending purge time: _____				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
<u>0.5</u>	<u>14:04</u>	<u>2.4</u>	<u>283.0</u>	<u>3.64</u>	<u>453.6</u>	<u>21.6</u>	<u>3.300</u>	<u>Slightly cloudy - no odour</u>	
<u>1.0</u>	<u>14:07</u>	<u>1.54</u>	<u>294.4</u>	<u>3.59</u>	<u>480.2</u>	<u>21.7</u>	<u>3.365</u>	"	
<u>1.5</u>	<u>14:10</u>	<u>1.54</u>	<u>297.9</u>	<u>3.57</u>	<u>490.3</u>	<u>21.7</u>	<u>3.420</u>	"	
<u>2.0</u>	<u>14:13</u>	<u>1.52</u>	<u>298.7</u>	<u>3.54</u>	<u>495.4</u>	<u>21.7</u>	<u>3.500</u>	"	
<u>2.5</u>	<u>14:16</u>	<u>1.64</u>	<u>299.0</u>	<u>3.53</u>	<u>498.9</u>	<u>21.8</u>	<u>3.580</u>	"	
<u>3.0</u>	<u>14:19</u>	<u>1.59</u>	<u>297.9</u>	<u>3.52</u>	<u>500.2</u>	<u>21.7</u>	<u>3.610</u>	"	
<u>3.5</u>	<u>14:22</u>	<u>1.20</u>	<u>284.0</u>	<u>3.58</u>	<u>514.3</u>	<u>21.7</u>	<u>3.660</u>	<u>S.N</u>	
<u>Sampled @ 14:24</u>									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / no odour / slight odour / odour / strong odour		
Total Well Volume Purged					*pH, temp, cond readings not necessary if well is purged dry				
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Was the well dry purged?				
Y N NA					Y <u>N</u>				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N
Duplicate sample ID	



# Groundwater - Well Sampling Data Form

Job Information	
Date: 31/3/14	Time: arrive 07:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT	Sampler: K. MCLEAN
Well ID: VO-MW01	Weather: FINE

Equipment	
Water quality equipment description: YSI 11F101305	Interface probe number: Geotech - SYD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) Water level (=) Water Column	4.726 m (-) 1.676 m (=) 3.05 m								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume	3.05 m (x) 8.96 (=) 8.978 L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters									
Beginning purge time: 13:34					Ending purge time:				
Litres	Time	PH	Temp °C	Cond <sup>us</sup> mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
12	13:36	4.94	22.3	20528	78.57	-100.7	✓	Light Dark brown, turbid, Sulphur odour.	
2	13:38	4.85	21.9	20403	72.51	-87.7	1.813	"	
3	13:43	4.77	22.1	20211	61.93	-52.9	1.864	"	
4	13:45	4.66	22.0	18619	58.91	-22.9	1.915	"	
5	13:47	4.48	22.2	17404	53.63	-42.1			
6	13:49	4.44	22.4	17.261	52.21	58.0	1.972	Dark brown, very cloudy,	
7	13:52	4.48	22.5	17.337	51.87	58.8	1.994	Dark brown, very cloudy, no odour.	
8	13:55	4.55	22.5	17.699	46.10	32.6	1.989	"	
9	13:59	4.63	22.5	17.987	47.25	19.8	1.957	Cloudy, light brown, slight sulphur odour	
10	14:03	4.69	22.3	18.241	47.76	11.8		"	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

330	Total Well Volume Actual amount of water prior to sampling	Sample time 14:04	Containers used 4
	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="radio"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	Y	N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N
Was documentation of equipment conducted?	Y	N NA
Were air bubbles present in vials at time of collection?	Y	N NA
Was sample for metals field filtered prior to preservations?	Y	N NA
Duplicate sample collected?	Y	N Duplicate sample ID _____
Rinsate blank collected?	Y	N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: 25.03.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237947
Site Location: ASH DAM	Sampler: S. NUTHALAPATI
Well ID: 10-MW02	Weather: CLOUDY

Equipment	
Water quality equipment description:	Interface probe number: 1500 0254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.930</u> m (-) <u>4.750</u> m (=) <u>2.180</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <span style="float: right;">PID: 0.0 ppm</span>									

Water Quality Parameters									
Beginning purge time: 12:52					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.5	12:55	5.65	22.3	19168	0.16	-32.1	4.840	light yellow. Turbid. no odour	
1.0	12:59	5.67	22.2	19027	0.06	-33.8	4.965	"	
1.5	13:03	5.67	22.0	18916	0.04	-41.8	4.890	"	
2.0	13:07	5.68	22.1	18957	0.05	-44.7	4.905	" Sheen observed.	
2.5	13:11	5.67	22.0	18913	0.05	-44.7	4.925		
3.0	13:15	5.66	22.1	18901	0.07	-42.9	4.940		
								Sampled @ 13:16	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy ( <u>turbid</u> ) / very turbid ( <u>no odour</u> ) slight odour / odour / strong odour / drawdown depth	
3.0	Total Well Volume Actual amount of water prior to sampling			Sample time: 13:16			Containers used: 7		
125	Flow rate mL/minute			Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		

6.930  
4.750  
2.180  
4.925  
4.930  
4.930

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="radio"/> Y	<input checked="" type="radio"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="radio"/> Y	<input checked="" type="radio"/> N	Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: 25.03.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237747
Site Location: ASHDAM	Sampler: S. NUTHALAPATI
Well ID: V0-MW04	Weather: SUNNY

Equipment	
Water quality equipment description:	Interface probe number: NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
8.755 m (-) 4.85 m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: 11:08					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.5	11:11	3.47	22.7	33636	0.14	459.2	1.545	Clear - no odour	
1.0	11:14	3.46	22.6	33667	0.7	457.6	1.545	" "	
2.0	11:17	3.52	22.2	33558	-	430.8	1.570	" "	
3.0	11:20	3.57	22.0	33508	-	384.1	1.585	" "	
4.0	11:23	3.59	22.0	33349	-	362.2	1.585	" "	
5.0	11:29	3.60	21.7	33249	-	351.9	1.585	" "	
6.0	11:33	3.60	21.6	33157	-	348.5	1.585	" "	
Sampled @ 11:34									
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: <input type="checkbox"/> clear <input type="checkbox"/> slightly cloudy / turbid / very turbid <input type="checkbox"/> no odour / slight odour / odour / strong odour / drawdown-depth									

6.0 L	Total Well Volume Actual amount of water prior to sampling	Sample time _____	Containers used _____
28 ml/min	Flow rate mL/minute	Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	'DO' stopped registering after first reading in water parameters. Redox hasn't stabilised.
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA	
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA	
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA	
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Duplicate sample ID _____
			Rinsate blank ID _____

Bottles: 7  
Preserv: VS, AC, P, N





# Groundwater - Well Sampling Data Form

Job Information	
Date: 21-03-14	Time: arrive depart
Project Name: STAPHONY	Project Number: 23 7747
Site Location: ASHDAM	Operator: S. MUTHALAPAT
Well ID: J010005	Weather: SHOWERS

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 10.515 m (-) 4.085 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PD - 9.6ppm

Water Quality Parameters									
Beginning purge time: 11:55					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	11:58	1.16	2115	4.13	230.2	21.7	4.255	Clear. no odour	
1.0	12:01	0.36	24481	4.13	206.6	21.8	4.370	" "	
1.5	12:04	0.26	13699	4.12	191.3	21.9	4.420	" "	
2.0	12:07	0.21	13355	4.12	169.7	22.0	4.470	" "	
2.5	12:10	0.19	13367	4.11	157.6	21.9	4.500	Slightly cloudy. no odour.	
3.0	12:13	0.17	13545	4.10	157.7	21.9	4.550	" "	
3.5	12:17	0.18	13688	4.10	148.7	21.9	4.545	" "	
4.0	12:20	0.18	13978	4.09	153.1	21.9	4.560		
Sampled @ 12:22									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear <u>slightly cloudy</u> turbid / very turbid <u>no odour</u> slight odour / odour / strong odour		

Total Well Volume Purged  
Final amount of water purged prior to sampling

\*pH, temp, cond readings not necessary if well is purged dry

Did field parameters stabilise?  Y  N  NA Was the well dry purged?  Y  N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 21-03-14	Time: arrive _____ depart _____
Project Name: SIMPHONT	Project Number: 237747
Site Location: ASK DAM	Operator: S. NUTHALAPATI
Well ID: JO MW06	Weather: Cloudy

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 8.150 m (-) 0.750 m (=) _____ m 4.52 m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L PMD = 0.0 ppm									

Water Quality Parameters									
Beginning purge time: 11:11					Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (°C)	DTW (mb TOC)	Comments	
1.0	11:16	0.15	21510	3.81	337.8	23.0	0.845	Clean, no odours	
2.0	11:21	-	21902	3.92	306.2	23.1	0.860	"	
3.0	11:26	-	21941	3.94	308.0	23.1	0.875	"	
4.0	11:31	-	21988	3.96	294.5	23.0	0.880	"	
5.0	11:36	-	21922	3.97	299.5	23.1	0.885	"	
Sampled @ 11:38									
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour		
Total Well Volume Purged							*pH, temp, cond readings not necessary if well is purged dry		
Final amount of water purged prior to sampling									
Did field parameters stabilise?					Y	N	NA	Was the well dry purged?	
								Y	N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	Y	N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	NA
Was documentation of equipment conducted?	Y	NA
Were air bubbles present in vials at time of collection?	Y	NA
Was sample for metals field filtered prior to preservations?	Y	NA
Duplicate or Rinsate (before/after) sample collected?	Y	N

DO's not displaying in water parameters, after first reading.

Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>21-03-74</u>	Time: arrive _____ depart _____
Project Name:	Project Number:
Site Location:	Operator:
Well ID: <u>10-MW07</u>	Weather: <u>cloudy (showers)</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NSW 4254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible    Micro-purge    Amazon    Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>10.720</u> m (-) <u>3.690</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <u>717.0.8 PPM</u>									

Water Quality Parameters								Comments
Beginning purge time: <u>10:29</u>				Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	
0.5	10:32	1.58	190.9	5.89	78.7	21.3	3.790	Cloudy, no odour.
1.0	10:35	4.36	141.6	5.57	23.7	21.3	3.790	" "
1.5	10:38	4.72	138.5	5.48	188.9	21.1	3.805	" "
2.0	10:41	4.56	131.3	5.41	179.1	21.2	3.810	" "
2.5	10:44	4.76	130.8	5.40	184.8	21.1	3.820	" "
3.0	10:47	4.74	130.5	5.38	190.6	21.1	3.830	" "
								Sampled @ 10:48
<b>Stabilisation Criteria</b>		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly <u>cloudy</u> / turbid / very turbid / <u>(no odour)</u> / slight odour / odour / strong odour	

<u>3.0 L</u>	Total Well Volume Purged	*pH, temp, cond readings not necessary if well is purged dry
Final amount of water purged prior to sampling		
Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y	<input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y	<input checked="" type="radio"/> N
		Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 31/3/14	Time: arrive 07:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT	Sampler: K. McLean
Well ID: VO-MW08	Weather: Overcast

Equipment	
Water quality equipment description: YSI 11F101305	Interface probe number: Geotech - SYD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>13.291</u> m (-) <u>9.469</u> m (=) <u>3.822</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>3.822</u> m (x) <u>1.96</u> (=) <u>7.49112</u> L									
Depth to product: <u>-</u> m		Product Thickness: <u>-</u> m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: 12:04 us					Ending purge time: 12:39				
Litres	Time	PH	Temp °C	Cond $\mu S/cm$	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	12:06	6.28	21.5	2405	86.75	49.9	—	No odour, Turbid, light brown	
2	12:08	6.07	20.6	2388	80.83	49.8	—	"	
3	12:10	5.99	20.2	2380	79.92	51.8	9.476	"	
4	12:12	5.95	20.2	2349	82.61	60.7	—	"	
5	12:14	5.82	20.3	2395	84.94	56.7	9.475	"	
6	12:17	5.91	20.5	2409	99.48	58.5	9.477	No odour, Very cloudy, light brown	
7	12:21	5.97	20.6	2347	93.13	71.9	9.472	Turbid, light brown, no odour	
8	12:24	5.81	20.4	2382	80.64	68.7	9.473	Very cloudy, light brown, no odour	
9	12:27	5.75	20.4	2403	78.93	66.3	—	"	
10	12:30	5.72	20.4	2412	<del>84.4</del> 64.2	64.2	9.475	"	

\*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

13	Total Well Volume	Actual amount of water prior to sampling	Sample time	Containers used
330	Flow rate	mL/minute	12:40	4
		Did field parameters stabilise?	Was the well dry purged?	
		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID <u>001-310314-KM</u>	
Rinsate blank ID <u>NO</u>	

Continued into next page.



# Groundwater - Well Sampling Data Form

Job Information	
Date: 31/3/14	Time: arrive 07:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237947
Site Location: VALES POINT	Sampler: K. McLean
Well ID: VO-MW08	Weather: Overcast

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	13.291 m (-)	9.469 m (=)	3.822 m						
	Water Column (x) Conversion Factor (=) Litres per 1 Well Volume		3.822 m (x)	1.96 (=)	7.49112 L				
Depth to product:	— m		Product Thickness:	— m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Water Quality Parameters									
Beginning purge time: 12:04					Ending purge time: 12:39				
Litres	Time	PH	Temp °C	Cond <sup>µS</sup> mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
11.	12:33	5.69	20.4	2418	77.11	63.5	9.475	"	"
12.	12:36	5.68	20.4	2426	77.47	63.6	—	Cloudy, no odour, light brown	
13.	12:39	5.66	20.4	2432	77.07	57.3		"	"
								*pH, temp, cond readings not necessary if well is purged dry	
								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

330 L	Total Well Volume	Actual amount of water prior to sampling	Sample time	12:40	Containers used	4
330 ml/min	Flow rate	mL/minute	Did field parameters stabilise?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID	DO1-310314-10M
Rinsate blank ID	NO

Litres 1 to 10 - refer to page 1



# Groundwater - Well Sampling Data Form

Job Information	
Date: 21.03.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 239747
Site Location: ASH DAM	Operator: S. NUTHA LAPATI
Well ID: V0-MW09	Weather: RAIN/SHOWERS

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 12.600 m (-) 7.320 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.2 ppm

Water Quality Parameters								Comments
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	
Beginning purge time: 9:37 <sup>5.1</sup> 43								Ending purge time:
0.5	9:46	0.28	5007	4.53	218.6	20.9	7.435	Slightly cloudy. No odour.
1.0	9:49	0.06	4934	4.62	219.3	20.7	7.520	"
1.5	9:53	0.02	4298	4.75	204.6	20.7	7.640	"
2.0	9:56	0.14	4000	4.75	200.0	20.8	7.690	"
2.5	9:59	0.25	3794	4.69	262.4	20.8	7.745	"
3.0	10:02	0.25	3693	4.59	281.5	20.8	7.780	"
3.5	10:05	0.19	3558	4.47	317.5	20.8	7.820	"
←								Sampled @ 10.08

Stabilisation Criteria: +/- 0.3ppm +/- 3% +/- 0.1 +/- 10mV +/- 10% Example Comments: clear (slightly cloudy) / turbid / very turbid (no odour) slight odour / odour / strong odour

3.5 L Total Well Volume Purged Final amount of water purged prior to sampling

Did field parameters stabilise?  Y  N  NA Was the well dry purged?  Y  N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	Y	N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	NA
Was documentation of equipment conducted?	Y	NA
Were air bubbles present in vials at time of collection?	Y	NA
Was sample for metals field filtered prior to preservations?	Y	NA
Duplicate or Rinsate (before/after) sample collected?	Y	N

Redox hasn't stabilised

Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 21.3.14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 233343
Site Location: ASH DAM	Operator: S. NITHALAPATI
Well ID: VD-QA1	Weather: cloudy

Equipment	
Water quality equipment description:	
Interface probe number: NSW L1254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 12.705 m (-) 6.965 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

NU.0020: DTW  
 ID# 700  
 13.580  
 PID: 1.8 PPM

Water Quality Parameters								
Beginning purge time: 8:06				Ending purge time:				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
0.5	8:06	0.29	794	5.75	-35.6	20.7	7.015	clear, no odour.
1.0	8:15	0.05	789	5.73	-62.4	20.7	7.030	" "
1.5	8:19	0.03	787	5.73	-71.2	20.7	7.040	" "
2.0	8:23	0.00	788	5.74	-75.8	20.6	7.040	" "
2.5	8:27	-	788	5.	-81.7	20.6	7.050	" "
								Sampled @ 8:30

Stabilisation Criteria	+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour	
Total Well Volume Purged _____ Final amount of water purged prior to sampling _____						*pH, temp, cond readings not necessary if well is purged dry	
Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA						Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Duplicate: VD-QA1-210314-SN @ 8:00  
 Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: 20.03.14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 237747
Site Location: ASH BOND	Operator: S. NISHALATHI
Well ID: 40-02011	Weather: SUNNY

Equipment	
Water quality equipment description:	
Interface probe number: NS10 42511	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 12.700 m (-) 9.545 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters									
Beginning purge time: 15:42					Ending purge time: 16:18				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
0.5	15:47	4.79	773	5.49	152.4	21.4	8.610	Clear, no odour	
1.0	15:52	4.89	503	5.43	165.0	20.9	8.635	"	
1.5	15:57	4.12	478.3	5.45	163.8	20.8	8.655		
1.8	16:00	5.24	470.3	5.46	162.1	20.6	8.665		
2.1	16:03	5.33	480.2	5.48	160.9	20.7	8.680		
2.4	16:06	5.22	472.4	5.52	157.8	20.9	8.685		
								Sampled @ 16:08	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour		

2.4 L	Total Well Volume Purged	*pH, temp, cond readings not necessary if well is purged dry
100ml/min	Final amount of water purged prior to sampling	
Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	TSP SPIKE
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	VD-QA2-200314 @ 16:00
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	TSP BLANK
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	VD-QA2-200314 @ 16:00
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 20-03-14	Time: arrive depart
Project Name: SYMPHONY	Project Number: 237747
Site Location: ASHPOND	Operator: S. NUTHALAPATI
Well ID: VO-MW02	Weather: SUNNY

Equipment	
Water quality equipment description:	
Interface probe number: NS10 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 3.555 m (-) 0.770 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 7.3 PPM

Water Quality Parameters									
Beginning purge time: 14:44					Ending purge time: 15:30				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments	
1.0	14:49	0.25	28940	4.14	257.3	23.4	0.850	Slightly cloudy - no odour	
0.0	14:53	0.11	28444	3.96	158.3	23.2	0.860	"	
3.0	14:58	0.07	28199	3.99	146.9	23.1	0.875	"	
3.6	15:01	0.06	28158	3.95	141.3	23.1	0.870	"	
3.2	15:04	0.07	28122	3.97	138.3	23.1	0.890		
4.8	15:07	0.09	28012	3.97	131.9	22.9	0.890		
								Sampled @ 15:08	

Stabilisation Criteria	+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour			
4.8L	Total Well Volume Purged					*pH, temp, cond readings not necessary if well is purged dry			
Final amount of water purged prior to sampling									
200ml/min						Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input type="checkbox"/> N	

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

VO-QA1-200314 - Duplicate

Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: 20.3.14	Time: arrive depart
Project Name: S-4 SHARPHANT	Project Number: 237747
Site Location: ASHPOND	Operator: S. NUTHALAPATI
Well ID: VO-04013	Weather: SUNNY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 5.775 m (-) 4.295 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									PID = 0.2 PPM

Water Quality Parameters								
Beginning purge time: 13:43					Ending purge time: 14:30			
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments
1.0	13:49	2.64	539	5.33	196.2	22.4	4.455	Clear no odour
2.0	13:54	2.31	501	5.27	195.9	22.4	4.590	" "
3.0	13:59	2.00	497.8	5.30	199.0	22.8	4.680	" "
4.0	14:04	1.74	507.0	5.36	166.4	22.8	4.760	" "
4.6	14:07	1.88	519	5.40	160.7	22.7	4.800	" "
5.2	14:10	1.86	524	5.44	152.3	22.8	4.830	" "
5.8	14:13	1.73	518	5.41	149.3	22.7	4.870	" "
Sampled @ 14:15								
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour	

Total Well Volume Purged	Final amount of water purged prior to sampling	*pH, temp, cond readings not necessary if well is purged dry
200ml / 1min	Did field parameters stabilise? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA	Was the well dry purged? <input type="radio"/> Y <input checked="" type="radio"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="radio"/> Y <input checked="" type="radio"/> N Duplicate sample ID

ppm = mg/L



# Groundwater - Well Sampling Data Form

Job Information	
Date: 26-03-14	Time: arrive depart
Project Name: SUDOPHONY	Project Number: 237747
Site Location: ASH DAM	Operator: S. NUTHALAPATI
Well ID: VO-MW18	Weather: CLOUDY

Equipment	
Water quality equipment description:	
Interface probe number: NSW 4254	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 7.785 m (-) 5.905 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

PID: 0.0 PPM

Water Quality Parameters										
Beginning purge time: 8:04					Ending purge time:					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments		
0.5	8:07	1.12	22184	3.78	297.1	19.5	5.965	Slightly cloudy - no odour		
1.0	8:10	0.82	21754	3.80	288.0	19.4	6.000	"		
1.5	8:13	0.95	20268	3.82	315.2	19.4	6.025	"		
2.0	8:16	0.97	19340	3.83	318.8	19.5	6.045	"		
2.5	8:19	0.96	18775	3.84	316.8	19.5	6.060	"		
3.0	8:22	0.95	18404	3.85	310.5	19.5	6.075	"		
								Sampled @ 8:24		
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour			
3.0		Total Well Volume Purged					*pH, temp, cond readings not necessary if well is purged dry			
		Final amount of water purged prior to sampling								
Did field parameters stabilise?					<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA			Was the well dry purged?		
					<input checked="" type="radio"/> Y <input checked="" type="radio"/> N					

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N

Duplicate sample ID: DD1-260314-SW @ 8:00



# Groundwater - Well Sampling Data Form

Job Information	
Date: 21.03.14	Time: arrive _____ depart _____
Project Name: S. TOPHONY	Project Number: 239747
Site Location: ASHDAM	Operator: S. NUTHALAPATI
Well ID: V. MW20	Weather: Rain

Equipment	
Water quality equipment description:	
Interface probe number: NSW 45254 <sup>SN</sup>	
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	100mm	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column 11.755 m (-) 6.900 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									

Water Quality Parameters									
Beginning purge time: 8:59					Ending purge time: _____				
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (°C)	DTW (mb TOC)	Comments	
0.5	9:02	0.40	261.8	5.37	63.2	20.3	7.030	Slightly cloudy. NO odour.	
1.0	9:05	0.50	234.8	5.32	62.0	20.2	7.030		
1.5	9:08	0.46	233.0	5.30	14.2	20.2	7.090		
2.0	9:12	0.36	237.8	5.30	2.2	20.2	7.110		
2.5	9:14	0.28	242.6	5.30	-4.6	20.1	7.130		
3.0	9:17	0.26	240.8	5.31	-8.7	20.1	7.130		
								Sampled @ 9:18	
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour		

Total Well Volume Purged \_\_\_\_\_  
 Final amount of water purged prior to sampling \_\_\_\_\_  
 \*pH, temp, cond readings not necessary if well is purged dry

Did field parameters stabilise?  Y  N  NA  
 Was the well dry purged?  Y  N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.3.14</u>	Time: arrive <u>13:30</u> depart <u>13:50</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>04 0237747</u>
Site Location: <u>Vales Point.</u>	Sampler: <u>Brookes</u>
Well ID: <u>VD-X-mw01</u>	Weather: <u>fine</u>

Equipment	
Water quality equipment description: <u>13C100781</u>	Interface probe number: <u>SVP 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	<u>4.310</u> m (-) <u>3.70</u> m (=) <u>5.7</u> m								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume	<u>5.7</u> m (x) <u>2</u> (=) <u>11.4</u> L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters										
Beginning purge time: <u>13:24:00</u>					Ending purge time: <u>13:41</u>					<u>purge intake ~6.5m.</u>
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments		
<u>0.2</u>	<u>13:25</u>	<u>5.58</u>	<u>21.1</u>	<u>1026</u>	<u>0.58</u>	<u>79.1</u>	<u>3.73</u>	<u>clear, colorless, no odours.</u>		
<u>1.0</u>	<u>13:29</u>	<u>5.25</u>	<u>20.3</u>	<u>736</u>	<u>0.07</u>	<u>68.8</u>	<u>3.71</u>	"		
<u>1.8</u>	<u>13:33</u>	<u>5.22</u>	<u>20.0</u>	<u>620</u>	<u>0.02</u>	<u>64.3</u>	<u>3.80</u>	"		
<u>2.6</u>	<u>13:37</u>	<u>5.22</u>	<u>19.9</u>	<u>596</u>	<u>0.02</u>	<u>58.3</u>	<u>3.83</u>	"		
<u>3.2</u>	<u>13:41</u>	<u>5.25</u>	<u>20.1</u>	<u>651</u>	<u>0.00</u>	<u>49.4</u>	<u>3.87</u>	"		
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth					
Total Well Volume		Actual amount of water prior to sampling			Sample time <u>13:45</u>		Containers used <u>1+1+3</u>			
<u>2.00</u>		Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	Rinsate blank ID _____

13 metals, T24, BTEX, Phenols.



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.3.14</u>	Time: arrive <u>1145</u> depart <u>1215</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VO-X-MW02</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>13C100781</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>11.525</u> m (-) <u>1.64</u> m (=) <u>9.6</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>9.6</u> m (x) <u>2</u> (=) <u>19.2</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N					

Water Quality Parameters								
Beginning purge time: <u>1152</u>		Ending purge time: <u>1205</u>		<u>pump intake ~ 4.5m.</u>				
Litres	Time	PH	Temp °C	Cond $\mu S/cm$	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>0.2</u>	<u>1152</u>	<u>4.97</u>	<u>22.9</u>	<u>2163</u>	<u>0.33</u>	<u>106.1</u>	<u>1.70</u>	<u>Clear, colorless, no odour</u>
<u>0.8</u>	<u>1155</u>	<u>5.01</u>	<u>22.6</u>	<u>22048</u>	<u>0.14</u>	<u>98.3</u>	<u>1.75</u>	<u>"</u>
<u>1.4</u>	<u>1158</u>	<u>5.04</u>	<u>22.3</u>	<u>22123</u>	<u>0.02</u>	<u>92.3</u>	<u>1.77</u>	<u>"</u>
<u>2.0</u>	<u>1201</u>	<u>5.05</u>	<u>22.2</u>	<u>22161</u>	<u>0.05</u>	<u>87.4</u>	<u>1.78</u>	<u>"</u>
<u>2.6</u>	<u>1204</u>	<u>5.05</u>	<u>22.2</u>	<u>22181</u>	<u>0.06</u>	<u>86.9</u>	<u>1.79</u>	<u>"</u>
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth
Total Well Volume Actual amount of water prior to sampling		Sample time: <u>1205</u>		Containers used: <u>3+1+1</u>				
<u>~200</u>		Flow rate mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		<u>Metals 13, TR 4, BTEX, (UT). Phenols</u>
Rinsate blank ID _____		





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.3.14</u>	Time: arrive <u>14:15</u> depart <u>14:50</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S Brookes</u>
Well ID: <u>VO-X-MW03</u>	Weather: <u>FINE</u>

Equipment	
Water quality equipment description: <u>13C100781</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>9.420</u> m (-) <u>3.835</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m    Product Thickness: _____ m    Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters										
Beginning purge time: <u>15:22</u>					Ending purge time: _____					<u>pump intake depth: 6.5m.</u>
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments		
0.2	14:23	5.38	23.3	28660	0.36	36.5	3.875	clear, colourless, no odours.		
1.0	14:27	5.57	22.7	28669	0.07	12.0	3.890	"		
1.8	14:31	5.60	22.7	28654	0.0	3.9	3.900	"		
2.6	14:35	5.62	22.4	28482	0.0	-2.0	3.910	"		
3.4	14:39	5.61	22.1	28318	0.01	-5.7	3.910	"		
*pH, temp, cond readings not necessary if well is purged dry    Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth										

~200	Total Well Volume Actual amount of water prior to sampling	Sample time <u>14:45</u>	Containers used <u>3+1+1</u>
	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	

Metals(13), TRH, BTEX, PAH/phenols.

Duplicate sample ID \_\_\_\_\_

Rinsate blank ID \_\_\_\_\_



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.3.14</u>	Time: arrive <u>0955</u> depart <u>1030</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VO-MW14</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>13C100781 YSI P-P</u> Interface probe number: <u>SYD 3877</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible    Micro-purge    Amazon    Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.080</u> m (-) <u>2.455</u> m (=) <u>3.6</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.6</u> m (x) <u>2</u> (=) <u>7.2</u> L									
Depth to product: <u>-</u> m		Product Thickness: <u>-</u> m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond $\mu\text{S}/\text{cm}$	DO mg/L	Redox mV	Drawdown <10cm	
<u>0.2</u>	<u>10:05</u>	<u>5.35</u>	<u>20.3</u>	<u>425.2</u>	<u>4.08</u>	<u>227.6</u>	<u>2.55</u>	<u>Slightly cloudy, colourless, no odours</u>
<u>1.0</u>	<u>10:06</u>	<u>5.28</u>	<u>20.2</u>	<u>426.7</u>	<u>3.83</u>	<u>230.9</u>	<u>2.56</u>	
<u>1.8</u>	<u>10:10</u>	<u>5.26</u>	<u>20.1</u>	<u>428.2</u>	<u>3.91</u>	<u>230.0</u>	<u>2.57</u>	
<u>2.6</u>	<u>10:14</u>	<u>5.24</u>	<u>20.1</u>	<u>418.7</u>	<u>3.77</u>	<u>207.4</u>	<u>2.58</u>	
<u>3.2</u>	<u>10:17</u>	<u>5.24</u>	<u>20.1</u>	<u>413.0</u>	<u>3.59</u>	<u>195.8</u>	<u>2.58</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

<u>~6.8</u>	Total Well Volume Actual amount of water prior to sampling	Sample time <u>10:20</u>	Containers used <u>3+1+1</u>
<u>~200</u>	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID	<u>/</u>
Rinsate blank ID	<u>/</u>

metals 13, TRH BTEX 3 lenses.





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-3-14</u>	Time: arrive <u>0900</u> depart <u>0945</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VO-MW15</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>YSI Probus 13C100781</u>	Interface probe number: <u>Geotech SYD 3871 30m</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.95</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>6.075</u> m (-) <u>1.260</u> (=) <u>4.8</u> m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
<u>4.8</u> m (x) <u>2</u> (=) <u>9.6 L</u> L									
Depth to product: <u>-</u> m	Product Thickness: <u>-</u> m	Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N							

Water Quality Parameters								
Beginning purge time: <u>9:17</u>		Ending purge time: <u>9:37</u>		<u>Pump intake ~ 3m.</u>				
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>0.3</u>	<u>10:17</u>	<u>5.55</u>	<u>21.6</u>	<u>310.0</u>	<u>1.04</u>	<u>127.7</u>	<u>1.60</u>	<u>clear, colourless, no odours.</u>
<u>0.9</u>	<u>10:20</u>	<u>5.47</u>	<u>21.6</u>	<u>300.8</u>	<u>1.00</u>	<u>133.2</u>	<u>1.80</u>	<u>~slowed pump down to &lt;100ml/hr</u>
<u>0.45</u>	<u>10:24</u>	<u>5.60</u>	<u>21.5</u>	<u>317.0</u>	<u>1.85</u>	<u>125.5</u>	<u>2.04</u>	<u>"</u>
<u>2.3</u>	<u>10:28</u>	<u>5.52</u>	<u>21.6</u>	<u>305.8</u>	<u>1.39</u>	<u>132.2</u>	<u>2.22</u>	<u>"</u>
<u>3.1</u>	<u>10:32</u>	<u>5.53</u>	<u>21.5</u>	<u>306.9</u>	<u>1.53</u>	<u>130.5</u>	<u>2.30</u>	<u>"</u>
<u>3.9</u>	<u>10:36</u>	<u>5.53</u>	<u>21.5</u>	<u>306.5</u>	<u>1.61</u>	<u>131.7</u>	<u>2.39</u>	<u>"</u>
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth
<u>7.2 L</u>	Total Well Volume		Actual amount of water prior to sampling		Sample time: <u>09:40</u>		Containers used: <u>1+3+1</u>	
<u>~200</u>	Flow rate		mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID: _____	
Rinsate blank ID: _____	

Metals 13  
TCH BTEX plumb.



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31.3.14</u>	Time: arrive <u>15:23</u> depart
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Broches</u>
Well ID: <u>VO-MW 17</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>13C100781 481</u>	Interface probe number: <u>SYD 3817</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>5.040</u> m (-) <u>1.250</u> m (=) <u>3.8</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.8</u> m (x) <u>2</u> (=) <u>7.6</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time:					Ending purge time:				
Litres	Time	PH	Temp °C	Cond $\mu$ S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>1529</u>	<u>6.56</u>	<u>23.5</u>	<u>1880</u>	<u>0.38</u>	<u>-89.2</u>	<u>1.260</u>	<u>Silty bottom (grey silt)</u>	
<u>1.0</u>	<u>1533</u>	<u>6.60</u>	<u>23.3</u>	<u>1735</u>	<u>0.16</u>	<u>-98.9</u>	<u>1.265</u>	<u>Slightly cloudy grey, no odours</u>	
<u>1.8</u>	<u>1537</u>	<u>6.59</u>	<u>23.4</u>	<u>1731</u>	<u>0.07</u>	<u>-102.5</u>	<u>1.265</u>	<u>"</u>	
<u>2.6</u>	<u>1541</u>	<u>6.56</u>	<u>23.2</u>	<u>1726</u>	<u>0.04</u>	<u>-105.6</u>	<u>1.265</u>	<u>"</u>	
<u>3.4</u>	<u>1545</u>	<u>6.55</u>	<u>23.2</u>	<u>1725</u>	<u>0.02</u>	<u>-106.4</u>	<u>1.270</u>	<u>"</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume Actual amount of water prior to sampling					Sample time _____ Containers used <u>3+1+1</u>				
<u>~200</u> Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		<u>Metals (13), TRH, BTEX, PAH / phenols</u>
Rinsate blank ID _____		





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-3-14</u>	Time: arrive <u>16:12</u> depart <u>1700</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point.</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VO-MW19</u>	Weather: <u>fine.</u>

Equipment	
Water quality equipment description: <u>13C100787</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	m (-) <u>4.260</u> m (=) _____ m								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>16:17</u>					Ending purge time: _____				
					<u>pump intake: 5.2m</u>				
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>16:18</u>	<u>4.33</u>	<u>23.8</u>	<u>17911</u>	<u>4.27</u>	<u>375.4</u>	<u>4.30</u>	<u>clear column, no odour.</u>	
<u>1.0</u>	<u>16:22</u>	<u>3.97</u>	<u>23.2</u>	<u>18794</u>	<u>3.47</u>	<u>410.0</u>	<u>4.320</u>	"	
<u>1.8</u>	<u>16:26</u>	<u>3.90</u>	<u>23.0</u>	<u>19932</u>	<u>3.35</u>	<u>419.4</u>	<u>4.330</u>	"	
<u>2.6</u>	<u>16:30</u>	<u>3.89</u>	<u>22.9</u>	<u>20930</u>	<u>2.91</u>	<u>425.1</u>	<u>4.340</u>	"	
<u>3.2</u>	<u>16:33</u>	<u>3.87</u>	<u>22.8</u>	<u>22117</u>	<u>2.46</u>	<u>432.5</u>	<u>4.360</u>	"	
*pH, temp, cond readings not necessary if well is purged dry							Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth		
Total Well Volume		Actual amount of water prior to sampling		Sample time <u>16:35</u>		Containers used <u>3+1+1</u>			
<u>~200</u>		Flow rate mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample ID		<u>062-310314-062</u>
Rinsate blank ID		<u>062-310314-062</u>

*metals (13)  
TRU, BTEX, PAH/phenols*



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01.04.14</u>	Time: arrive _____ depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>2377487</u>
Site Location: <u>ASBESTOS LANDFILLS</u>	Sampler: <u>S. NUTHALAKATI</u>
Well ID: <u>VP-MW01</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>PID: 4-3 PPM</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>9.695</u> m (-) <u>3.57</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID: 4-3 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>12:57</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.7	13:00	6.38	20.4	714	0.25	-241.7	3.875	Clear no odour	
1.2	13:03	6.38	20.8	716	0.12	-251.6	4.125	"	
1.5	13:06	6.40	21.1	721	0.13	-253.6	4.280	"	
1.8	13:09	6.41	21.1	723	0.11	-255.3	4.420	"	
2.1	13:12	6.42	21.4	727	0.12	-254.0	4.510	"	
2.4	13:15	6.42	21.3	728	0.12	-255.7	4.590	"	
2.7	13:18	6.42	21.1	727	0.14	-257.6	4.660	"	
Sampled @ 13:20									
*pH, temp, cond readings not necessary if well is purged dry Example Comments: <input type="checkbox"/> clear <input type="checkbox"/> slightly cloudy / turbid / very turbid <input type="checkbox"/> no odour <input type="checkbox"/> slight odour / odour / strong odour / drawdown depth									
<u>2.7</u>	Total Well Volume			Sample time <u>13:20</u>			Containers used <u>5</u>		
<u>100ml/min</u>	Actual amount of water prior to sampling			Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Flow rate mL/minute									

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>Drawdown hasn't stabilised</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N Rinsate blank ID <u>RO1_010414_SNE 4:00</u>





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01-04-14</u>	Time: arrive _____ depart _____
Project Name: <u>SARPHON-1</u>	Project Number: <u>237747</u>
Site Location: <u>ASBESTOS LANDFILLS</u>	Sampler: <u>S. NATHALAPATI</u>
Well ID: <u>VP-MW02</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	<u>8.7655m</u> (-) <u>2.050</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer:	<input type="checkbox"/> Y	<input type="checkbox"/> N	<u>PID: 0.0ppm</u>				

Water Quality Parameters									
Beginning purge time: <u>11:07</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1.0	11:10	5.81	21.3	673	0.23	-75.8	2.355	<u>Clear: no odour</u>	
1.5	11:13	5.80	22.0	677	0.20	-112.5	2.555	" "	
2.0	11:16	5.79	22.2	684	0.24	-176.8	2.620	" "	
2.5	11:19	5.78	22.2	684	0.24	-200.7	2.680	" "	
3.0	11:22	5.75	21.9	676	0.26	-223.3	2.745	" "	
3.5	11:25	5.72	21.9	678	0.30	-238.4	2.800	" "	
3.0	11:28	5.71	22.1	679	0.36	-249.8	2.835	" "	
4.5	11:31	5.70	22.2	681	0.41	-258.5	2.870	" "	
								<u>Sampled @ 11:32</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comment: <u>clear</u> slightly cloudy / turbid / very turbid <u>no odour</u> slight odour / odour / strong odour / drawdown depth	

<u>4.5</u>	Total Well Volume	Sample time <u>11:32</u>	Containers used <u>5</u>
<u>150ml/min</u>	Actual amount of water prior to sampling	Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	Flow rate mL/minute		

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>Redox hasn't stabilised.</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>23.03.14</u>	Time: arrive _____ depart _____
Project Name: <u>S. THALAPATI</u>	Project Number: <u>237747</u>
Site Location: <u>RAIL UNLOADER</u>	Operator: <u>S. N. THALAPATI</u>
Well ID: <u>SP. 012#10</u>	Weather: <u>Cloudy</u>

Equipment	
Water quality equipment description:	
Interface probe number: <u>NSW 4254</u>	
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in well $V = \delta \times r^2 \times h$ V = volume in litres $\delta = 3.142$ r = radius in m h = height of water column in m
Bore Diameter	50mm	<u>100mm</u>	125mm	150mm	200mm	150mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	<u>3.73</u>	5.06	6.68	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water level (=) Water Column <u>14.8270</u> m (-) <u>6.820</u> m (=) _____ m S.N. Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L <u>PIV = 0.3 PPM</u>									

Water Quality Parameters										
Beginning purge time: <u>8:18</u>					Ending purge time: _____					
Litres	Time	Oxy (ppm)	Cond (µS/cm)	PH	Redox (mV)	Temp (C)	DTW (mb TOC)	Comments		
0.5	8:22	6.32	336.7	5.78	219.6	19.5	7.030	<u>Clear. no odour</u>		
1.0	8:25	6.27	305.2	5.82	229.5	19.4	7.250	"		
1.5	8:29	6.584	297.9	5.76	236.5	19.4	7.465	"		
2.0	8:33	5.76	255.5	5.73	237.2	19.6	7.650	"		
2.5	8:38	5.67	289.9	5.66	227.4	19.7	7.830	"		
3.0	8:43	5.00	282.8	5.59	226.0	19.8	8.010	"		
3.5	8:48	4.59	276.5	5.53	227.9	19.7	8.160	"		
<u>Sampled @ 8:50</u>										
Stabilisation Criteria		+/- 0.3ppm	+/- 3%	+/- 0.1	+/- 10mV	+/- 10%	Example Comments: <u>clear</u> / slightly cloudy / turbid / very turbid / (no odour) / slight odour / odour / strong odour			
100 ml / min <u>3.5 L</u>		Total Well Volume Purged Final amount of water purged prior to sampling				S.N. *pH, temp, cond readings not necessary if well is purged dry				
Did field parameters stabilise?					<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged?			<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>Drawdown hasn't stabilized.</u>
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate or Rinsate (before/after) sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID



# Groundwater - Well Sampling Data Form

Job Information	
Date: 27/3/14	Time arrive 10:50 depart 12:20
Project Name: SYMPHONY	Project Number: 0237747
Site Location: VALES POINT	Sampler: S. OSMAN
Well ID: VS-MW05	Weather: RAINY

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 5.015 m (-) 2.5 m (=) 2.5 m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume 2.5 m (x) 1.96 (=) 4.9 L									
Depth to product:	Product Thickness:		Verified with Bailer:		<input type="checkbox"/> Y <input type="checkbox"/> N				

Water Quality Parameters														
Beginning purge time: 11:33					Ending purge time: 12:05									
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments						
1	11:38	5.64	25.2	781	0.52	-12.7	2.51	TURBID, LIGHT BROWN, NO ODOUR						
2	11:45	5.43	25.6	692	0.39	-40.9	2.51	"						
3	11:53	5.37	25.7	673	0.56	-60.6	2.515	"						
4	11:58	5.38	25.9	677	0.63	-64.6	2.515	"						
5	12:05	5.41	25.9	672	0.60	-67.3	2.51	Slightly cloudy, no odour						
*pH, temp, cond readings not necessary if well is purged dry							Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth							
Total Well Volume					Sample time 12:10					Containers used 3+(1+1+1)				
Actual amount of water prior to sampling					Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA				
										Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Duplicate sample ID		_____	
Rinsate blank ID		_____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>1:20</u> depart <u>2:20</u>
Project Name: <u>SYMPHONY</u>	Project Number: <u>023 7747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>US-MW02</u>	Weather: <u>PARTLY CLOUDY + HOT</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u>
	Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>6.035</u> m (-) <u>2.16</u> m (=) <u>3.875</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>3.875</u> m (x) <u>1.96</u> (=) <u>7.6</u> L									
Depth to product: <u>        </u> m		Product Thickness: <u>        </u> m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>1:35</u>					Ending purge time: <u>2:05</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>1</u>	<u>1:40</u>	<u>5.28</u>	<u>23.7</u>	<u>1415</u>	<u>0.82</u>	<u>56.2</u>	<u>2.35</u>	<u>slightly cloudy, no odour</u>	
<u>2</u>	<u>1:46</u>	<u>5.33</u>	<u>23.6</u>	<u>1426</u>	<u>1.03</u>	<u>49.1</u>	<u>2.50</u>	<u>" "</u>	
<u>3</u>	<u>1:54</u>	<u>5.37</u>	<u>23.8</u>	<u>1442</u>	<u>1.35</u>	<u>56.1</u>	<u>2.64</u>	<u>clear, no odour</u>	
<u>4</u>	<u>2:03</u>	<u>5.40</u>	<u>24.0</u>	<u>1460</u>	<u>1.63</u>	<u>39.6</u>	<u>2.78</u>	<u>clear, no odour</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>2:10</u>		Containers used <u>3+1+1+1</u>	
Flow rate mL/minute			Did field parameters stabilise?			<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Duplicate sample ID		<u>        </u>	
Rinsate blank ID		<u>        </u>	



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>3:10PM</u> depart <u>4:00</u>
Project Name: <u>SYMPHENY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VSMW03</u>	Weather: <u>PARTLY CLOUDY OVERCAST</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>5.215</u> m (-) <u>2.665</u> m (=) <u>2.55</u> m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume <u>2.55</u> m (x) <u>1.96</u> (=) <u>5</u> L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters									
Beginning purge time: <u>3:23</u>					Ending purge time: <u>3:45</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	3:28	6.87	22.9	2548	0.63	-30.3	2.765	clear, no odour	
2	3:34	6.86	22.7	2521	0.38	-26.6	2.85	clear but slightly yellow in colour, no odour	
3	3:39	6.83	22.6	2477	1.33	-45.8	2.91	"	
4	3:45	6.79	22.7	2442	0.44	-68.1	2.975	"	
*pH, temp, cond readings not necessary if well is purged dry Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume		Actual amount of water prior to sampling				Sample time <u>3:50</u>		Containers used <u>3+1+1+1</u>	
Flow rate mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA				Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA <span style="margin-left: 20px;">x 2</span>
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>26/3/14</u>	Time: arrive <u>4:05</u> depart _____
Project Name: <u>SYMPHONY</u>	Project Number: <u>0237747</u>
Site Location: <u>VALES POINT</u>	Sampler: <u>S. OSMAN</u>
Well ID: <u>VS-MW04</u>	Weather: <u>OVERCAST</u>

Equipment	
Water quality equipment description:	Interface probe number:
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u>
	Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>5.08</u> m (-) <u>2.655</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>4:20</u>					Ending purge time: <u>4:45</u>				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	4:24	6.13	22.7	2786	0.58	-82.6	2.835	<u>clear, no odour</u>	
2	4:30	6.28	22.7	2404	0.34	-44.4	2.975	" "	
3	4:37	6.27	22.8	2373	0.31	-35.1	3.11	" "	
4	4:45	6.26	22.8	2309	0.62	-30.8	3.217	" "	
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume _____ Actual amount of water prior to sampling _____					Sample time <u>4:50</u> Containers used _____				
Flow rate _____ mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA      Was the well dry purged? <input type="checkbox"/> Y <input type="checkbox"/> N				

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Duplicate sample ID		<u>D03-260314-50</u>	
Rinsate blank ID		_____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>31-03-14</u>	Time: arrive _____ depart _____
Project Name: <u>SIMPSONY</u>	Project Number: <u>237747</u>
Site Location: <u>MORGAN FLY ASH</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>VT-MW01</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NS10 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible    Micro-purge    Amazon    Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>7.445</u> m (-) <u>5.175</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m    Product Thickness: _____ m    Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N <u>PID = 0.0 PPM</u>									

Water Quality Parameters									
Beginning purge time: <u>10:46</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.7</u>	<u>10:49</u>	<u>4.21</u>	<u>22.2</u>	<u>368.2</u>	<u>0.99</u>	<u>29.7</u>	<u>5.220</u>	<u>Turbid. no odour</u>	
<u>1.4</u>	<u>10:52</u>	<u>4.15</u>	<u>22.1</u>	<u>363.5</u>	<u>0.88</u>	<u>4.6</u>	<u>5.230</u>	" "	
<u>2.2</u>	<u>10:55</u>	<u>4.14</u>	<u>22.0</u>	<u>359.4</u>	<u>0.83</u>	<u>-5.5</u>	<u>5.235</u>	<u>Slightly cloudy</u> "	
<u>2.8</u>	<u>10:58</u>	<u>4.13</u>	<u>22.1</u>	<u>359.4</u>	<u>0.84</u>	<u>-9.1</u>	<u>5.235</u>	" "	
<u>3.5</u>	<u>11:01</u>	<u>4.10</u>	<u>22.1</u>	<u>360.1</u>	<u>0.87</u>	<u>-18.1</u>	<u>5.235</u>	" "	
<u>4.2</u>	<u>11:04</u>	<u>4.12</u>	<u>22.1</u>	<u>363.9</u>	<u>0.98</u>	<u>17.3</u>	<u>5.235</u>	" "	
<u>Sampled @ 11:05</u>									
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / <u>turbid</u> / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth				
Total Well Volume			Actual amount of water prior to sampling			Sample time <u>11:05</u>		Containers used <u>4</u>	
Flow rate			mL/minute			Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Rinsate blank collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Duplicate sample ID		<u>D01-310314 SN @ 1100</u>	
Rinsate blank ID		_____	





# Groundwater - Well Sampling Data Form

Job Information	
Date: 31-03-14	Time: arrive _____ depart _____
Project Name: STAPHANT	Project Number: 237947
Site Location: MORGAN ASH PLANT	Sampler: S. MATHALAPATI
Well ID: VT-MW03B	Weather: CLEAR

Equipment	
Water quality equipment description:	Interface probe number: N5114254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 7.045 m (-) 5.375 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N PID: 0.5 PPM									

Water Quality Parameters									
Beginning purge time: 9:02					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.5	9:05	4.68	23.2	1274	3.22	28.9	5.415	Cloudy - no odour	
1.1	9:08	4.42	23.2	1295	2.49	55.8	5.430	"	
1.7	9:11	4.29	23.1	1267	1.98	97.3	5.445	CLEAR "	
2.3	9:14	4.20	23.0	1278	1.56	90.8	5.455	"	
2.9	9:17	4.14	23.0	1285	1.41	98.1	5.455	"	
3.5	9:20	4.09	22.9	1289	1.27	99.3	5.460	"	
Sampled @ 9:22									
*pH, temp, cond readings not necessary if well is purged dry							Example Comments: <input type="checkbox"/> clean / <input type="checkbox"/> slightly cloudy / <input type="checkbox"/> turbid / very turbid / <input type="checkbox"/> no odour / <input type="checkbox"/> slight odour / <input type="checkbox"/> odour / strong odour / drawdown depth		
Total Well Volume					Sample time 9:22				
Actual amount of water prior to sampling					Containers used 4				
Flow rate mL/minute					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA				
					Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
	Duplicate sample ID _____	
	Rinsate blank ID _____	



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1-4-14</u>	Time: arrive <u>10:00</u> depart <u>1030</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brooker</u>
Well ID: <u>VU-MW01</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>Hunter YSI</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circe)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) <u>4.620</u> m (-) <u>2.120</u> m (=) _____ m	Water level (=) Water Column								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m	Product Thickness: _____ m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N						

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	
Beginning purge time: <u>10:03</u>		Ending purge time: <u>10:20</u>		<u>pump intake: 3.7m.</u>				
0.2	10:04	4.99	21.6	399.6	61.0	-49.0	2.190	clear colorless, no odours.
1.0	10:06	4.93	21.7	400.1	55.79	-48.4	2.230	"
1.8	10:12	4.94	21.8	399.4	58.14	-52.5	2.260	"
2.6	10:16	4.94	21.8	397.0	61.80	-49.0	2.280	"
3.4	10:20	4.93	21.9	399.6	58.87	-54.8	2.30.	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume	Actual amount of water prior to sampling	Sample time: <u>10:20</u>	Containers used: <u>3 + 1 + 1</u>
<u>~200</u>	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID: _____ Rinsate blank ID: _____	

*metals (⊕) TRU, BTO, RAH, phenols.*





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1.4.14</u>	Time: arrive <u>1030</u> depart <u>1105</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VDLmw02</u>	Weather: <u>FIN</u>

Equipment	
Water quality equipment description: <u>Hydrus VSI</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.95</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>7.280</u> m (-) <u>4.785</u> m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m			Product Thickness: _____ m			Verified with Bailer <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			

Water Quality Parameters									
Beginning purge time: <u>10:41</u>				Ending purge time: <u>10:59</u>				<u>pump intake 6m.</u>	
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>1042</u>	<u>3.74</u>	<u>20.4</u>	<u>1685</u>	<u>66.11</u>	<u>146.3</u>	<u>4.840</u>	<u>Cloudy, no odours.</u>	
<u>1.0</u>	<u>1046</u>	<u>3.23</u>	<u>19.6</u>	<u>1700</u>	<u>61.53</u>	<u>141.7</u>	<u>4.910</u>	<u>" "</u>	
<u>1.8</u>	<u>1050</u>	<u>3.24</u>	<u>19.6</u>	<u>1686</u>	<u>64.18</u>	<u>126.1</u>	<u>5.00</u>	<u>" "</u>	
<u>2.6</u>	<u>1054</u>	<u>3.25</u>	<u>19.6</u>	<u>1680</u>	<u>65.00</u>	<u>120.3</u>	<u>5.03</u>	<u>" "</u>	
<u>3.8</u>	<u>1058</u>	<u>3.25</u>	<u>19.6</u>	<u>1658</u>	<u>62.38</u>	<u>113.3</u>	<u>5.06</u>	<u>" "</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	
Total Well Volume				Actual amount of water prior to sampling		Sample time <u>1100</u>		Containers used <u>3 + 1 + 1</u>	
<u>~200</u>		Flow rate mL/minute		Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Duplicate sample ID _____		
Rinsate blank ID _____		

metals (8), TRH, B.TOX, PAH, phenols



VO-06

# Groundwater - Well Sampling Data Form

Job Information	
Date: 1/4/14	Time: arrive 10:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT	Sampler: K. McLean
Well ID: VU-MW03	Weather: Cloudy

Equipment	
Water quality equipment description: 90 FCM VSP. T387	Interface probe number: Geotech - SYD 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: Peristaltic Submersible <b>Micro-purge</b> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) 12.038 m	Water level (=) 9.796 m	Water Column (=) 2.242 m							
		Water Column (x) 2.242 m	Conversion Factor (=) 1.96	Litres per Well Volume (=) 4.394 L					
Depth to product: — m	Product Thickness: — m	Verified with Bailer: <input checked="" type="checkbox"/> <input type="checkbox"/>							

Water Quality Parameters									
Beginning purge time: 14:27					Ending purge time: —				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1	14:31	4.55	23.9	3.16	1.79	136	—	Very turbid, no odour, orange	
2	14:33	4.36	21.8	3.28	1.00	132	9.957	Turbid, no odour, orange	
3	14:38	4.42	22.1	3.21	0.74	130	10.09	Very cloudy, no odour, light orange	
4	14:41	4.44	21.9	3.21	0.50	138	—	Cloudy, no odour, light brown	
5	14:45	4.42	22.0	3.22	0.46	141	10.092	Slightly cloudy, no odour, light brown	
6	14:48	4.41	22.0	3.24	0.42	145	—	,,	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

6	Total Well Volume	Sample time 14:51	Containers used 4
338	Actual amount of water prior to sampling	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	Duplicate sample ID
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	Rinsate blank ID

DOI-010414-KM  
TOI-010414-KM





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1-4-14</u>	Time: arrive <u>0840</u> depart <u>09:10</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>V4-MW04</u>	Weather:

Equipment	
Water quality equipment description:	Interface probe number: <u>340 3788</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>10.0</u> m (-) <u>6.64</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m		Product Thickness: _____ m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters								
Beginning purge time: <u>08:41</u>			Ending purge time: <u>8:58</u>			<u>pump into drum 8.0m.</u>		
Litres	Time	PH	Temp °C	Cond $\mu$ S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
<u>0.2</u>	<u>0842</u>	<u>4.63</u>	<u>21.3</u>	<u>96.4</u>	<u>72.48</u>	<u>150.8</u>	<u>6.690</u>	<u>Clear, colorless, no odour.</u>
<u>1.0</u>	<u>0846</u>	<u>4.47</u>	<u>21.1</u>	<u>92.0</u>	<u>64.2</u>	<u>160.8</u>	<u>6.715</u>	<u>"</u>
<u>1.8</u>	<u>08:50</u>	<u>4.35</u>	<u>21.2</u>	<u>91.1</u>	<u>55.84</u>	<u>167.4</u>	<u>6.740</u>	<u>"</u>
<u>2.6</u>	<u>08:54</u>	<u>4.33</u>	<u>21.1</u>	<u>91.3</u>	<u>55.10</u>	<u>171.9</u>	<u>6.760</u>	<u>"</u>
<u>3.4</u>	<u>08:58</u>	<u>4.31</u>	<u>21.3</u>	<u>91.5</u>	<u>53.17</u>	<u>173.9</u>	<u>6.770</u>	<u>"</u>
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth								

<u>~ 200</u>	Total Well Volume Actual amount of water prior to sampling	Sample time <u>08 0900</u>	Containers used <u>3 + 1 + 1 (+2 + 1 + 1) x 2</u>
	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID <u>T01-010414-SB</u>	
Rinsate blank ID _____	



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1/4/14</u>	Time: arrive <u>0800</u> depart <u>0830</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VU-MW05</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>Hunter office YSI</u>	Interface probe number: <u>SYD 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 \times h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor <small>(volume in factor L/m)</small>	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>10.755</u> m (-) <u>8.110</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>8:10</u>					Ending purge time: <u>08:25</u>				
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>08:09</u>	<u>4.87</u>	<u>22.6</u>	<u>554</u>	<u>69.28</u>	<u>85.9</u>	<u>8.170</u>	<u>clear + colourless, no odours.</u>	
<u>1.0</u>	<u>08:13</u>	<u>4.81</u>	<u>23.1</u>	<u>539</u>	<u>63.57</u>	<u>94.5</u>	<u>8.195</u>	<u>High DO reading likely due to</u>	
<u>1.8</u>	<u>08:17</u>	<u>4.76</u>	<u>23.2</u>	<u>549</u>	<u>61.44</u>	<u>99.9</u>	<u>8.210</u>	<u>air bubbles in tubing as pump intake</u>	
<u>2.6</u>	<u>08:21</u>	<u>4.71</u>	<u>23.3</u>	<u>573</u>	<u>58.25</u>	<u>103.7</u>	<u>8.220</u>	<u>depth ~ 9.5m b70C.</u>	
<u>3.4</u>	<u>08:25</u>	<u>4.71</u>	<u>23.3</u>	<u>582</u>	<u>56.29</u>	<u>105.2</u>	<u>8.240</u>		
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume					Sample time <u>08:25</u>				
Actual amount of water prior to sampling					Containers used <u>3+1+1</u>				
<u>~ 200</u>					Flow rate mL/minute				
					Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA				
					Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N				

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

metals (8), TRH, BTEX, PAH phend.

Duplicate sample ID \_\_\_\_\_  
Rinsate blank ID \_\_\_\_\_





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1.4.14</u>	Time: arrive <u>0920</u> depart <u>0945</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>10-mw06</u>	Weather: <u>fine</u>

Equipment	
Water quality equipment description: <u>Thruv YSI</u>	Interface probe number: <u>540 3877</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon
	Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
<u>10.110</u> m (-) <u>5.280</u> m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>09:23</u>			Ending purge time: <u>09:40</u>			<u>purge intake ~ 7.5m</u>			
Litres	Time	PH	Temp °C	Cond $\mu$ S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>0924</u>	<u>4.28</u>	<u>23.2</u>	<u>150.9</u>	<u>61.95</u>	<u>161.7</u>	<u>5.340</u>	<u>clear, colourless, no odours.</u>	
<u>1.0</u>	<u>0928</u>	<u>4.05</u>	<u>22.8</u>	<u>145.3</u>	<u>55.92</u>	<u>155.3</u>	<u>5.350</u>	<u>"</u>	
<u>1.8</u>	<u>0932</u>	<u>4.07</u>	<u>22.7</u>	<u>147.5</u>	<u>56.56</u>	<u>149.5</u>	<u>5.360</u>	<u>"</u>	
<u>2.6</u>	<u>0936</u>	<u>4.06</u>	<u>22.6</u>	<u>147.3</u>	<u>57.73</u>	<u>147.7</u>	<u>5.370</u>	<u>"</u>	
<u>3.4</u>	<u>0940</u>	<u>4.04</u>	<u>22.6</u>	<u>147.6</u>	<u>60.39</u>	<u>146.7</u>	<u>5.375</u>	<u>"</u>	
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									
Total Well Volume			Sample time: <u>0940</u>			Containers used: <u>3+ 1+1</u>			
Actual amount of water prior to sampling			Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA			
<u>~200</u>						Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Duplicate sample ID: _____	
Rinsate blank ID: _____	

metals (⊕), TK4, BTEX, PAH, phenols.





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1.4.14</u>	Time: arrive <u>11:40.</u> depart <u>12:50</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes.</u>
Well ID: <u>VU-MW07</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>Hunter Valley VSI</u>	Interface probe number: <u>503788</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible    Micro-purge    Amazon    Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>9.575</u> m (-) <u>7.38</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m			Product Thickness: _____ m			Verified with Bailer: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			

Water Quality Parameters									
Beginning purge time: <u>12:19</u>					Ending purge time: <u>12:43</u>				
Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>12:20</u>	<u>4.51</u>	<u>25.4</u>	<u>387.5</u>	<u>60.70</u>	<u>86.9</u>	<u>7.430</u>	<u>Slightly cloudy, no odour.</u>	
<u>1.0</u>	<u>12:24</u>	<u>4.50</u>	<u>24.4</u>	<u>262.2</u>	<u>60.83</u>	<u>-42.7</u>	<u>7.480</u>	"	
<u>1.8</u>	<u>12:28</u>	<u>4.36</u>	<u>24.3</u>	<u>246.3</u>	<u>60.65</u>	<u>-25.8</u>	<u>7.570</u>	"	
<u>2.6</u>	<u>12:32</u>	<u>4.16</u>	<u>24.3</u>	<u>225.8</u>	<u>59.11</u>	<u>25.0</u>	<u>7.570</u>	"	
<u>3.8</u>	<u>12:36</u>	<u>4.08</u>	<u>24.4</u>	<u>222.6</u>	<u>48.75</u>	<u>43.2</u>	<u>7.600</u>	"	
<u>4.6</u>	<u>12:40</u>	<u>4.03</u>	<u>24.4</u>	<u>214.6</u>	<u>47.14</u>	<u>47.2</u>	<u>7.640</u>	"	
<u>5.2</u>	<u>12:43</u>	<u>4.01</u>	<u>24.3</u>	<u>205.7</u>	<u>46.48</u>	<u>58.1</u>	<u>7.670</u>	"	
*pH, temp, cond readings not necessary if well is purged dry					Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth				
Total Well Volume			Sample time <u>12:45</u>			Containers used <u>3+8+1</u>			
Actual amount of water prior to sampling			Flow rate mL/minute			Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
<u>~200</u>									

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Rinsate blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
Duplicate sample ID		_____	
Rinsate blank ID		_____	



# Groundwater - Well Sampling Data Form

Job Information	
Date: 1/4/14	Time: arrive 10:00 depart 17:30
Project Name: SYMPHONY IV	Project Number: 0237747
Site Location: VALES POINT	Sampler: K. MCLEAN
Well ID: VU-MW08.	Weather: FINE

Equipment	
Water quality equipment description: 90FLM VSP: T3871	Interface probe number: Geotech - SVO 3894
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible <u>Micro-purge</u> Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column	13.164 m (-)	10.410 m (=)							
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
Depth to product: — m		Product Thickness: — m		Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N					

Water Quality Parameters								Comments
Litres	Time	PH	Temp °C	Cond <sup>µS</sup> mS/cm	DO mg/L	Redox mV	Drawdown <10cm	
1	16:50	6.82	21.1	1621	1.16	135	—	Very cloudy, light brown, no odour.
2	16:58	6.85	19.7	1601	0.76	117	10.415	" "
3	17:01	6.87	19.5	1555	0.74	116	10.250	" "
4	17:04	6.85	19.5	1520	0.62	114	10.420	Cloudy, light brown, no odour
5	17:07	6.84	19.4	1513	0.49	107	10.420	" "
6	17:10	6.84	17.4	1515	0.49	103	—	Cloudy, light brown, no odour
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Beginning purge time: 16:47	Ending purge time: 17:10		
6	Total Well Volume	Sample time: 17:11	Containers used: 4
333	Actual amount of water prior to sampling	Flow rate mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
			Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	Duplicate sample ID: —
	Rinsate blank ID: —





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01-04-14</u>	Time: arrive _____ depart _____
Project Name: <u>STAPHENT</u>	Project Number: <u>237747</u>
Site Location: <u>OPP. COAL STORAGE AREA</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>VU-MW09</u>	Weather: <u>SONNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW 4254</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>12.725</u> m (-) <u>7.900</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L									
Depth to product: _____ m      Product Thickness: _____ m      Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N      PID: <u>01PPM</u>									

Water Quality Parameters										
Beginning purge time: <u>10:19</u>					Ending purge time: _____					
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments		
<u>1.6</u>	<u>10:22</u>	<u>5.94</u>	<u>19.8</u>	<u>578</u>	<u>1.25</u>	<u>-9.8</u>	<u>8.270</u>	<u>Clear - no odour</u>		
<u>1.2</u>	<u>10:25</u>	<u>5.97</u>	<u>19.9</u>	<u>580</u>	<u>1.19</u>	<u>-37.9</u>	<u>8.445</u>	"		
<u>1.6</u>	<u>10:28</u>	<u>6.00</u>	<u>20.0</u>	<u>581</u>	<u>1.16</u>	<u>-60.2</u>	<u>8.655</u>	"		
<u>1.9</u>	<u>2.10</u>	<u>10:31</u>	<u>6.01</u>	<u>20.3</u>	<u>582</u>	<u>1.15</u>	<u>-72.3</u>	<u>8.770</u>	"	
<u>2.2</u>	<u>2.4</u>	<u>10:34</u>	<u>6.03</u>	<u>20.6</u>	<u>585</u>	<u>1.22</u>	<u>-80.1</u>	<u>8.890</u>	"	
<u>2.5</u>	<u>2.8</u>	<u>10:37</u>	<u>6.07</u>	<u>20.6</u>	<u>588</u>	<u>1.13</u>	<u>-83.3</u>	<u>8.955</u>	"	
<u>Sampled @ 10:38</u>										
*pH, temp, cond readings not necessary if well is purged dry      Example Comments: <u>clear</u> slightly cloudy / turbid / very turbid / <u>no odour</u> / slight odour / odour / strong odour / drawdown depth										

Total Well Volume Actual amount of water prior to sampling <u>5.5N 100ml</u> <u>1.96</u>	Sample time <u>10:38</u> Containers used <u>4</u> Flow rate mL/minute Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA      Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
---	---

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N      Rinsate blank ID _____

Drawdown hasn't stabilised



# Groundwater - Well Sampling Data Form

Job Information	
Date: 01-04-14	Time: arrive _____ depart _____
Project Name: SYMPHONY	Project Number: 237747
Site Location: WOODLEWORTH'S ROAD!	Sampler: S. NITHALATHI
Well ID: VJ-MW12	Weather: SUNNY

Equipment	
Water quality equipment description:	Interface probe number: NSC04254
Purging equipment: (please circle)	Bailer type: Plastic Teflon Pump type: <u>Peristaltic</u> Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) Water level (=) Water Column	6.160 m (-) 2.390 m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L								
Depth to product: _____ m	Product Thickness: _____ m	Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N	PID: 0.288m						

Water Quality Parameters									
Beginning purge time: 8:59					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
1.0	9:02	4.22	20.2	1507	0.19	1.2	2.410	Slightly cloudy. no odour	
2.0	9:05	4.19	20.1	1494	0.20	-20.2	2.415	"	
3.0	9:08	4.19	20.0	1483	0.12	-35.0	2.415	"	
4.0	9:11	4.19	20.0	1480	0.13	-48.9	2.415	"	
5.0	9:14	4.19	20.0	1476	0.16	-62.0	2.415	"	
6.0	9:17	4.18	20.0	1469	0.20	-70.8	2.415	"	
								Sampled @ 9:18	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / <u>slightly cloudy</u> / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

0 L	Total Well Volume Actual amount of water prior to sampling	Sample time: 9:18	Containers used: 4
2.0 L/3min	Flow rate mL/minute	Did field parameters stabilise? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Redox hasn't stabilised.
Was pre-cleaning sampling equipment properly protected from contamination?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: 31-03-14	Time: arrive _____ depart _____
Project Name: SIMPHANT	Project Number: 237747
Site Location: OPP. MORGAN ASH PLANT	Sampler: S. NUTHALAPATI
Well ID: VU-12013	Weather: OVERCAST

Equipment	
Water quality equipment description:	Interface probe number: NSW 4254
Purging equipment (please circe)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Total Well Depth (-) Water level (=) Water Column									
11.965 m (-) 8.535 m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N PID: 0.0 ppm									

Water Quality Parameters								
Beginning purge time: 15:18				Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.6	15:17	4.94	22.2	221.2	4.71	-20.1	8.790	Turbid - light yellow - no odour
1.2	15:20	4.86	22.2	208.8	4.50	-19.0	8.980	"
1.8	15:23	4.82	22.3	203.4	5.05	-11.9	9.040	"
2.4	15:26	4.80	22.4	197.2	5.07	-4.9	9.080	"
3.0	15:29	4.74	22.2	197.6	5.69	-4.5	9.120	Clear
3.6	15:32	4.75	22.2	198.8	4.56	-2.1	9.150	Clear
								Sampled @ 15:34
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloud / turbid / no odour / slight odour / odour / strong odour / drawdown depth

?	Total Well Volume	Sample time: 15:34	Containers used: 4
200/min	Actual amount of water prior to sampling	Flow rate	Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	mL/minute		Was the well dry purged? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y <input type="radio"/> N
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="radio"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="radio"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="radio"/> N Rinsate blank ID _____



# Groundwater - Well Sampling Data Form

Job Information	
Date: 01-04-14	Time: arrive _____ depart _____
Project Name: STMPHANT	Project Number: 237747
Site Location: OPP. COAL STORAGE AREA	Sampler: S. NUTHALAYATI
Well ID: VU MW11	Weather: SUNNY

Equipment	
Water quality equipment description:	Interface probe number: NSW 4254
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column									
12.735 m (-) 9.735 m (=) _____ m									
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume									
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: 9:44					Ending purge time:				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
0.5	9:47	4.90	20.1	191.8	1.84	15.1	9.200	Slightly cloudy - no odour	
1.1	9:50	4.65	19.9	174.2	1.87	-2.0	9.240	"	
1.7	9:53	4.62	19.9	174.0	1.97	-4.4	9.275	"	
2.3	9:56	4.62	20.1	174.1	2.05	-6.3	9.300	Clear - no odour	
2.9	9:59	4.59	20.1	174.2	2.05	-7.2	9.330	"	
3.5	10:02	4.60	20.0	173.9	2.00	-8.4	9.340	"	
Sampled @ 10:04									
*pH, temp, cond readings not necessary if well is purged dry									
Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth									

3.5 L	Total Well Volume	Sample time _____	Containers used 4
200 mL/min	Actual amount of water prior to sampling	Did field parameters stabilise? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input type="checkbox"/> Y <input type="checkbox"/> N
	Flow rate mL/minute		

Field QC Checks			
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="radio"/> Y	<input type="radio"/> N	
Was documentation of equipment conducted?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="checkbox"/> NA
Duplicate sample collected?	<input type="radio"/> Y	<input checked="" type="radio"/> N	Duplicate sample ID _____
Rinsate blank collected?	<input type="radio"/> Y	<input checked="" type="radio"/> N	Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>01.04.14</u>	Time: arrive _____ depart _____
Project Name: <u>SOMPANT</u>	Project Number: <u>237747</u>
Site Location: <u>OPP. SUBSTATION</u>	Sampler: <u>S. NUTHALAPATI</u>
Well ID: <u>VU-1015</u>	Weather: <u>SUNNY</u>

Equipment	
Water quality equipment description:	Interface probe number: <u>NSW 4234</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> Teflon Pump type: <u>Peristaltic</u> Submersible      Micro-purge      Amazon      Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = $\pi r^2 h$ V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) <u>6.875</u> m (-) <u>3.040</u> m (=) _____ m	Water level (=) _____ m		Water Column (x) Conversion Factor (=) Litres per 1 Well Volume						
_____ m (x) _____ (=) _____ L									
Depth to product: _____ m			Product Thickness: _____ m			Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N		<u>210.0.0PPM</u>	

Water Quality Parameters									
Beginning purge time: <u>14:01</u>					Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.6</u>	<u>14:04</u>	<u>5.53</u>	<u>21.5</u>	<u>456.1</u>	<u>3.57</u>	<u>-39.5</u>	<u>3.220</u>	<u>Clear - no odour</u>	
<u>1.1</u>	<u>14:07</u>	<u>5.48</u>	<u>21.7</u>	<u>458.7</u>	<u>4.16</u>	<u>-45.5</u>	<u>3.290</u>	"	
<u>1.6</u>	<u>14:10</u>	<u>5.46</u>	<u>21.4</u>	<u>450.6</u>	<u>3.88</u>	<u>-47.5</u>	<u>3.460</u>	"	
<u>2.5</u>	<u>14:13</u>	<u>5.47</u>	<u>21.4</u>	<u>453.0</u>	<u>3.66</u>	<u>-52.6</u>	<u>3.440</u>	"	
<u>2.9</u>	<u>14:16</u>	<u>5.47</u>	<u>21.5</u>	<u>453.6</u>	<u>3.77</u>	<u>-54.4</u>	<u>3.490</u>	"	
<u>3.3</u>	<u>14:19</u>	<u>5.48</u>	<u>21.6</u>	<u>454.4</u>	<u>3.81</u>	<u>-59.0</u>	<u>3.500</u>	"	
<u>3.7</u>	<u>14:22</u>	<u>5.48</u>	<u>21.5</u>	<u>455.3</u>	<u>3.87</u>	<u>-61.5</u>	<u>3.515</u>	"	
								<u>Sampled @ 14:24</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: <input checked="" type="checkbox"/> clear / <input type="checkbox"/> slightly cloudy / turbid / very turbid / <input type="checkbox"/> no odour / <input type="checkbox"/> slight odour / odour / strong odour / drawdown depth	

<u>3.7</u>	Total Well Volume	Sample time <u>14:24</u>	Containers used <u>4</u>
<u>130ml/min</u>	Actual amount of water prior to sampling	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
	Flow rate mL/minute		

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Duplicate sample ID _____
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Rinsate blank ID _____





# Groundwater - Well Sampling Data Form

Job Information	
Date: 1.4.14	Time: arrive 15.25 depart 1600
Project Name: Symphony IV	Project Number: 0237747
Site Location: Vales Point	Sampler: S. Brookes
Well ID: VLE-MW16	Weather: Fine

Equipment	
Water quality equipment description: <i>ERM - Hunker Vally YSI</i>	Interface probe number: 3877
Purging equipment: (please circle)	Bailer type: Plastic Teflon
	Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	96	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column 10.290 m (-) 4.020 (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: <input type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters								
Beginning purge time: 15:29				Ending purge time: _____				
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.2	1530	3.92	21.4	598	10.41	144.0	4.220	Slightly cloudy, no colours.
1.0	1534	3.67	21.7	599	96.60	142.0	4.200	"
1.8	1538	3.60	21.7	598	94.77	138.1	4.190	"
2.6	1542	3.58	21.5	595	93.88	132.9	4.190	"
3.4	1546	3.56	21.4	592	90.44	127.1	4.190	"
4.2	1550	3.55	21.4	592	95.84	124.7	4.190	"

*Notes: pump intake ~ 8 m below. Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth*

Total Well Volume	Actual amount of water prior to sampling	Sample time	1550.	Containers used	3 + 1 + 1
Flow rate	mL/minute	Did field parameters stabilise?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	Was the well dry purged?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

Field QC Checks	
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Duplicate sample collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Rinsate blank collected?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

*metals (8), TRM, BTEX, PAH, Phenols.*

Duplicate sample ID \_\_\_\_\_  
Rinsate blank ID \_\_\_\_\_



# Groundwater - Well Sampling Data Form

Job Information	
Date: <u>1.4.14</u>	Time: arrive <u>14:30</u> depart <u>15:10</u>
Project Name: <u>Symphony IV</u>	Project Number: <u>0237747</u>
Site Location: <u>Vales Point</u>	Sampler: <u>S. Brookes</u>
Well ID: <u>VU-MW17</u>	Weather: <u>Fine</u>

Equipment	
Water quality equipment description: <u>Hunter 451</u>	Interface probe number: <u>3877 Crestech</u>
Purging equipment: (please circle)	Bailer type: <u>Plastic</u> <u>Teflon</u> Pump type: <u>Peristaltic</u> <u>Submersible</u> <u>Micro-purge</u> <u>Amazon</u> <u>Other:</u>


Well Gauging and Purge Volume Calculations									
Casing Diameter	25mm	<u>50mm</u>	100mm	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V = Pr x r x h V = volume in litres P = 3.14159 r = radius in cm h = height of water column in cm
Conversion Factor (volume in factor L/m)	0.98	<u>1.96</u>	7.85	31.4	49.1	70.7	125.7	196.3	
Total Well Depth (-) Water level (=) Water Column <u>8.435</u> m (-) <u>2.580</u> m (=) _____ m Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L Depth to product: _____ m    Product Thickness: _____ m    Verified with Bailer: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N									

Water Quality Parameters									
Beginning purge time: <u>14:32</u>			Ending purge time: <u>15:00</u>			<u>pump intake ~ 5.0m b/c</u>			
Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments	
<u>0.2</u>	<u>14:33</u>	<u>4.26</u>	<u>23.4</u>	<u>455.3</u>	<u>81.79</u>	<u>126.8</u>	<u>3.730</u>	<u>clear, colourless, no odours.</u>	
<u>1.0</u>	<u>14:37</u>	<u>3.97</u>	<u>22.3</u>	<u>430.0</u>	<u>73.77</u>	<u>121.5</u>	<u>3.920</u>	<u>"</u>	
<u>1.8</u>	<u>14:41</u>	<u>3.91</u>	<u>22.9</u>	<u>433.6</u>	<u>69.41</u>	<u>120.3</u>	<u>4.110</u>	<u>"</u>	
<u>2.6</u>	<u>14:45</u>	<u>3.96</u>	<u>22.9</u>	<u>434.7</u>	<u>75.13</u>	<u>109.1</u>	<u>4.225</u>	<u>NB: Well not recharging well ~</u>	
<u>3.8</u>	<u>14:49</u>	<u>3.97</u>	<u>22.4</u>	<u>439.9</u>	<u>72.02</u>	<u>106.2</u>	<u>4.350</u>	<u>pump slowed, to lowest setting.</u>	
<u>4.2</u>	<u>14:53</u>	<u>3.89</u>	<u>22.4</u>	<u>440.7</u>	<u>77.62</u>	<u>181.1</u>	<u>4.410</u>	<u>4.410.</u>	
<u>5.0</u>	<u>14:57</u>	<u>3.86</u>	<u>22.4</u>	<u>440.9</u>	<u>78.30</u>	<u>111.3</u>	<u>4.470</u>		
<u>5.3</u>	<u>15:00</u>	<u>3.84</u>	<u>22.3</u>	<u>438.9</u>	<u>77.91</u>	<u>107.5</u>	<u>4.515</u>		
								<u>NB: Time constraints, ∴ sampled.</u>	
*pH, temp, cond readings not necessary if well is purged dry								Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth	

<u>~200</u>	<b>Total Well Volume</b> Actual amount of water prior to sampling	Sample time <u>15:00</u> Containers used <u>3 + 1 + 1</u>
	<b>Flow rate</b> mL/minute	Did field parameters stabilise? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA    Was the well dry purged? <input type="checkbox"/> Y <input type="checkbox"/> N

Field QC Checks		
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Was documentation of equipment conducted?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Were air bubbles present in vials at time of collection?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Was sample for metals field filtered prior to preservations?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N <input type="checkbox"/> NA
Was duplicate sample collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Was rinse blank collected?	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
		Duplicate sample ID _____ Rinse blank ID _____


metals 8, TRH, BTEX, PAHs

Client: Project No: 0237747 Project Name: Symptom 4 Site Name: VP Site Address: WP 019			ID: VR_M_S501   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 1m Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-20cm silty clay, dark grey, consistent, homogenous, moist, medium dense - dense, soft. med-high plasticity slight H <sub>2</sub> S odour. Shell fragments			1					VR_M_S501-0.20	
20-40 <del>same as</del> same as above, cone consistent throughout.			2					VR_M_S501-0.40.	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By:     JD      
 Checked By: \_\_\_\_\_  
 Page 1 of 1


Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WP 020			ID: VR-M-SS03   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 1m Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-20cm silty clay, dark grey, consistent, homogeneous, moist. Medium dense - dense, soft. medium to high plasticity. Slight H <sub>2</sub> S odour. Shell fragments found 0-5cm.			0					VR-M-SS03-0.20	
20-45cm same as above. Core consistent throughout.			2					VR-M-SS03-0.45	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JO  
 Checked By: \_\_\_\_\_  
 Page 1 of 1




Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WP 021			ID: VR-M-SS04   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13-3-14 Drill Finish Date: 13-3-14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 1 Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-25cm silty clay, dark grey consistent, homogeneous, moist. medium dense- dense. Soft-medium stiff. Slight H <sub>2</sub> S odour. Some shell fragments.			0					VR-M-SS04-0.25	
25-50cm same as 0-25cm layer. Core consistent throughout.			2					VR-M-SS04-0.50	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.


Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WP 023			ID: VR_m-SS05   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 0.80m Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-20cm silty sand. Some clay. medium grain. <del>Some</del> Gravel 15mm particle size. Dark grey / black. Loose.			0					VR_m-SS05-0.20	
20-60cm. Cranelly sand, loose, grey/brown. Medium to large grain. Large gravel pieces up to 20mm ranging in size. No odour. Potentially Road base.			2					VR_m-SS05-0.60	
Sandy 60-100cm. Clay, brown small amount of woody debris. Dense. Med-high plasticity.			3					VR_m-SS05-1.0	
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JO  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client: Project No: 0237747 Project Name: SUMPHON 4 Site Name: VP Site Address: WP 022			ID: VR_m_S506   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 0.80m Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-15 cm. Silty sandy clay (sand ~ 10%). Dark grey. Wet, soft. Medium dense. Shell fragments throughout. Slight H <sub>2</sub> S odour.			0					VR_m_S506_0.15	
15-30 cm. Silty clay, grey, homogeneous, moist. Woody debris. Dense, soft. H <sub>2</sub> S odour.			2					VR_m_S506_0.30	
30-65 cm. Silty clay, grey, homogeneous, moist. Soft. Dense.			3					VR_m_S506_0.65	
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1



Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WPO26.			ID: VR_C_5507		
Drill Start Date: 14.03.14 Drill Finish Date: 14.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): Hole Diam. / Width (mm): SD Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:		Water Level (Final): RL Ground: RL Case: East MGA: North MGA:		




ERM Australia Pty Ltd

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-20 sand, medium grain size, ~50% gravel portions = large - from ~2mm - 50mm diameter, <del>grey</del> grey/brown sand, mixed colours of gravel. Loose, moist. no odour.	sw		0					VR_C_5507-0.20 001-140314-JD 101-140314-JD	
20-30 clay, fine grain size, white and orange, some consistency, moist, gravel, ~10% up to 20mm diameter, medium plasticity. Dense. Soft.			2					VR_C_5507-0.30 102-140314-JD 102-140314-JD	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client: Project No: 0237747 Project Name: Symptom 4 Site Name: VP Site Address: VP 025			ID: VR_C_SS06   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 0.30m Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-5cm Sand, black/grey. medium grain loose. wet. Generally uniform.  5-15cm. Sandy clay. light grey. <sup>very</sup> Dense, medium stiffness. Consolidated clay. No odour.			1					VR_C_SS06-0.15	
			2						
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JO  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client: Project No: 0237747 Project Name: SYMPHONY Site Name: <del>WVP</del> Site Address: WPOL7			ID: VR_C_SS05		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:		Total Depth (m): <del>13</del> 0.3 Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:		Water Level (Final): RL Ground: RL Case: East MGA: North MGA:	




ERM Australia Pty Ltd

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
<del>0-25</del> sandy 0-25cm - silty clay, fine grain. Sand ~10%. Dark grey/ blue grey, moist. Dense, soft-very soft. medium plasticity anoxic, organic. H <sub>2</sub> S odour.			0					VR_C_SS05-0.25 D05-130314-J0-0.25	
25-55cm - silty sandy clay - same as 0-25cm section with distinct thin (~1cm) bands of darker silty clay.			2					VR_C_SS05-0.55 D05-130314-J0-0.55	
55-80cm sandy clay <del>grey</del> brown, medium grain, moist, soft low-medium plasticity, ~30% woody debris.			3					VR_C_SS05-0.80 D05-130314-J0-0.80	
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.


Log By: JJO  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client:	Project No: 0237747		<b>ID: VR_CSS01</b>   <b>ERM</b> ERM Australia Pty Ltd
Project Name: SYMPHONY	Site Address: WP 015		
Site Name: VPICG	Total Depth (m): 0.5m		
Drill Start Date: 12-3-14	Hole Diam. / Width (mm): 50mm	Water Level (Final):	
Drill Finish Date: 12-3-14	Casing Type:	RL Ground:	
Drill Co:	Casing Diam. (mm):	RL Case:	
Driller:	Surface Completion:	East MGA:	
Drill Method:	Water Strike: 0m	North MGA:	
Hole Type:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface - silty clay			0						
0-0.12 silty clay, fine grain, consistent, dark grey, very wet, medium density - dense, medium plasticity well sorted. Homogenous. H <sub>2</sub> S odour.			0.20						VR_C-SS01-0.20 (0-0.20)
0.12-0.50 silty clay, fine grain, some sand present (~10%). Dark grey, moist, medium density - dense, medium plasticity, well sorted. Homogenous, H <sub>2</sub> S odour. woody debris throughout (~5%)			0.50						VR_C-SS01-0.50 (0.20-0.50)

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.


Log By: JJD  
Checked By: \_\_\_\_\_  
Page 1 of 1

Client: Project No: 0237747 Project Name: SIMPHONY Site Name: VP Site Address: WPO16			ID: VR-C-SS02   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 12.3.14 Drill Finish Date: Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 0.50 Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike: 0.0m	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-10cm silty clay, brown/grey, some sand particles (~10%) very wet. medium density - dense medium-high plasticity. well sorted. Homogenous. slight H <sub>2</sub> S odour.			0					VR-C-SS02-0.10 (0.0-0.10)	
10-50cm, same as 0-10cm layer, moist, small amounts of woody debris. and whole shells.			2					VR-C-SS02-0.50 (0.10-0.50)	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.


Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WP 014			ID: VR-C-SS03   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 12-3-14 Drill Finish Date: 12-3-14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 40cm Hole Diam. / Width (mm): 50mm Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-0.15 silty clay, fine grain, dark grey, rock + shell fragments medium density - dense medium-plasticity well sorted. Homogenous wet. NO.			0.15					VR-C-SS03-0.15	
0.15-0.40 Same as above, brown/grey some shell + woody debris. moist. NO.			0.40					VR-C-SS03-0.4	
			1						
			2						
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1


Client: Project No: 0237747 Project Name: SYMPHONY Site Name: VP Site Address: WP 018			ID: VR-C-SS04   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 13.3.14 Drill Finish Date: 13.3.14 Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 1 Hole Diam. / Width (mm): 50 Casing Type: Casing Diam. (mm): Surface Completion: Water Strike:	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-20cm Sandy clay 5-10cm wet 10-20cm moist. dark brown, dense, soft, high plasticity high amount of woody debris. HC odour, ether oil/petrol Terrestrial sediment			0					VR-C-SS04_0.20	
20-30cm Sandy clay. moist/dry, black, medium density high level of woody debris. Terrestrial sediment			2					VR-C-SS04_0.30	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1



Client: Project No: 0237747 Project Name: SYMPHONY Site Name: Site Address: WP 013			ID: VR_M_S502   <b>ERM</b> ERM Australia Pty Ltd		
Drill Start Date: 12.3.14 Drill Finish Date: Drill Co: Driller: Drill Method: Hole Type:	Total Depth (m): 0.50 Hole Diam. / Width (mm): 50mm Casing Type: Casing Diam. (mm): Surface Completion: Water Strike: 0	Water Level (Final): RL Ground: RL Case: East MGA: North MGA:			

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0						
0-0.25 silty clay, fine grain, dark grey brown, <del>very</del> wet medium density - dense. medium-high plasticity well sorted, small sand fragments (~5%) some shell fragments. H <sub>2</sub> S odour - anoxic 0.25-0.50 same as 0-0.25 <del>0.25-0.50</del> moist  consistency across core.			1					VR_M_S502-0.25 (0-0.25)	
			2					VR_M_S502-0.50 (0.25-0.50)	
			3						
			4						
			5						

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: JD  
 Checked By: \_\_\_\_\_  
 Page 1 of 1

**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

WPOOS

**Station Information:**

Sample Location: VR\_WLSW03 Duplicate: / Date: 11/3/14  
 Water depth: 1.2 Rinsate: / Depth Sampled: 1 Time: 1620

**Station Location and Description:**

GPS (UTM): EASTING: 0362851 NORTHING: 6330709 AVG. ERROR: +3m marked

Description: warm, clean, clear.

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	<u>8.12</u>
Conductivity	<u>57834</u>
Temperature	<u>33.5</u>
DO	<u>5.97</u> <u>100.4%</u>
ORP	<u>50.8</u>
Turbidity (NTU)	<u>32305-00</u>

SPL 49750

COLOUR: clear  
 SHEEN?: none  
 NOTES: no odour

Sampling Method:

pole sampler

Field staff: JO

Data Recorder(s): JO

**Station Information:**

Sample Location: \_\_\_\_\_ Duplicate: \_\_\_\_\_ Date: \_\_\_\_\_  
 Water depth: \_\_\_\_\_ Rinsate: \_\_\_\_\_ Depth Sampled: \_\_\_\_\_ Time: \_\_\_\_\_

**Station Location and Description:**

GPS (UTM): EASTING: \_\_\_\_\_ NORTHING: \_\_\_\_\_ AVG. ERROR: \_\_\_\_\_ marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	
Conductivity	
Temperature	
DO	
ORP	
Turbidity	

COLOUR: \_\_\_\_\_  
 SHEEN?: \_\_\_\_\_  
 NOTES: \_\_\_\_\_

Sampling Method: \_\_\_\_\_

Field staff: \_\_\_\_\_

Data Recorder(s): \_\_\_\_\_

**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

WP 009

**Station Information:**

Sample Location: VR-W-SW02 Duplicate: 1 Date: 11.3.14  
 Water depth: 0.3 Rinsate: 1 Depth Sampled: 0.2 Time: 1630

**Station Location and Description:**

GPS (UTM) EASTING: 0362848 NORTHING: 6330475 AVG. ERROR: ± 3m marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	8.12
Conductivity	57765
Temperature	33.4
DO	57.0
ORP	6.59 109.2%
Turbidity	32305.00

SPL 49717

COLOUR: \_\_\_\_\_  
 SHEEN?: \_\_\_\_\_  
 NOTES: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Sampling Method: pole  
 Field staff: JD  
 Data Recorder(s): JD

**Station Information:**

WP010

Sample Location: VR-W-SW01 Duplicate: 1 Date: 11.3.14  
 Water depth: 0.9 Rinsate: \_\_\_\_\_ Depth Sampled: 0.7 Time: 1655

R01-110314-JD

**Station Location and Description:**

GPS (UTM) EASTING: 0362912 NORTHING: 6330024 AVG. ERROR: ± 2m marked

Description: near edge of bay.

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	8.13
Conductivity	58079
Temperature	33.7
DO	6.11 100.7%
ORP	23.3
Turbidity	32370.00

SPL 49809

COLOUR: clear  
 SHEEN?: none  
 NOTES: no odour  
 \_\_\_\_\_  
 \_\_\_\_\_

Sampling Method: pole sampler  
 Field staff: JD  
 Data Recorder(s): JD



**SURFACE WATER FIELD NOTES**

PROJECT #:

**Station Information:**

WP - 013

Sample Location: VR-M-SW02

Duplicate: /

Date: 12.3.14

Water depth: 1.2m

Rinsate: /

Depth Sampled: 1m Time: 1325

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0362152 NORTHING: 6330364 AVG. ERROR: \_\_\_\_\_ marked

Description: open lake, water slightly turbid, no sheen, green/grey sludge to water body.

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	<u>7.85</u>
Conductivity	<u>57877</u>
Temperature	<u>29.1</u>
DO	<u>81.7%</u>
ORP	<u>122.6</u>
Turbidity TDS	<u>31265.00</u>

COLOUR: clear

SHEEN?: no

NOTES: no odour

Sampling Method: \_\_\_\_\_

Field staff: JD

Data Recorder(s): JD

**Station Information:**

WP 014

Sample Location: VR-C-SW03

Duplicate: /

Date: 12.3.14

Water depth: 50cm

Rinsate: /

Depth Sampled: 70cm Time: 1410

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0361806 NORTHING: 6329943 AVG. ERROR: ±2m marked

Description: near bank, murky, turbid water.

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	<u>7.89</u>
Conductivity	<u>49335</u>
Temperature	<u>29.2</u>
DO ppm	<u>4.75 / 73.2%</u>
ORP	<u>90.0</u>
Turbidity TDS	

SPC 45655

COLOUR: \_\_\_\_\_

SHEEN?: \_\_\_\_\_

NOTES: no odour, water clean/clear where collected.

Sampling Method: \_\_\_\_\_

Field staff: JD

Data Recorder(s): JD

**SURFACE WATER FIELD NOTES**

PROJECT #:

**Station Information:** WPO15

Sample Location: VR-C-SW01 Duplicate: NA Date: 12-3-14  
 Water depth: 0.3m Rinsate: ROL-120314-JB Depth Sampled: 0.2m Time: 1510

**Station Location and Description:**

GPS (UTM) S6 EASTING: 0362439 NORTHING: 6330671 AVG. ERROR: ±2m marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	<u>8.0</u>
Conductivity	<u>50440</u>
Temperature	<u>29.4</u>
DO	<u>5.26ppm 79.1%</u>
ORP	<u>12.9</u>
Turbidity TDS	<u>30225.00</u>

SPC 46534

COLOUR: yellow/brown / clear  
 SHEEN?: NO  
 NOTES: small algal filaments on waters surface. slightly turbid. NO odour.

Sampling Method: pole sampler.

Field staff: JD / BioAnalysis

Data Recorder(s): JD

**Station Information:**

Sample Location: VR-C-SW02 Duplicate: NA Date: 12-3-14  
 Water depth: 0.3m Rinsate: NA Depth Sampled: 0.2m Time: 1440

**Station Location and Description:** WPO16

GPS (UTM) S6 EASTING: 03622021 NORTHING: 6330485 AVG. ERROR: ±3m marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	<u>8.00</u>
Conductivity	<u>48024</u>
Temperature	<u>29.7</u>
DO	<u>5.85 91.9%</u>
ORP	<u>50.2</u>
Turbidity TDS	<u>28655.2</u>

SPC 44085

COLOUR: clear  
 SHEEN?:  
 NOTES: algal filaments on waters surface. NO, slightly turbid.

Sampling Method: pole sampler.

Field staff: JD / BioAnalysis

Data Recorder(s): JD.

**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

**Station Information:** WP017

Sample Location: VR-C-SW05 Duplicate: 006-130614-30 Date: 13.3.14  
 Water depth: 0.30 Rinsate: / Depth Sampled: 020 Time: 0900

**Station Location and Description:**

GPS (UTM) 56 EASTING: 0360528 NORTHING: 6330011 AVG. ERROR: ±3m marked

Description: edge of river/creek, sample collected  
around 1m from bank.  
Slight brown tinge

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	7.22
Conductivity	48521
Temperature	29.1
DO	2.08ppm
ORP	111.8
Turbidity TDS	29217.00

SPC 45131

COLOUR: clear  
 SHEEN?: none.  
 NOTES: slight brown  
tinge

Sampling Method: \_\_\_\_\_

Field staff: JO

Data Recorder(s): JO

**Station Information:** WP018

Sample Location: VR-C-SW04 Duplicate: / Date: 13.3.14  
 Water depth: ~1m Rinsate: / Depth Sampled: 0.3m Time: 1015

**Station Location and Description:**

GPS (UTM) 56 EASTING: 0361130 NORTHING: 6329153 AVG. ERROR: ±2m marked

Description: within small lake off river subsidence  
subsidence, lots of dead trees,

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	7.46
Conductivity	50940
Temperature	29.5
DO	2.12ppm 33.2%
ORP	88.0
Turbidity TDS	30485.00

SPC 46883

COLOUR: clear  
 SHEEN?: none  
 NOTES: clear, clear

Sampling Method: \_\_\_\_\_

Field staff: JO

Data Recorder(s): JO



**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

**Station Information:** WPO19

Sample Location: VR-M-SW01 Duplicate: / Date: 13.3.14  
 Water depth: 1m Rinsate: / Depth Sampled: 30cm Time: 1115

**Station Location and Description:**

GPS (UTM) S6 EASTING: 0362336 NORTHING: 6329926 AVG. ERROR: ± 2m. marked

Description: center of bay.

Notes:

**Field Parameters:**

PARAMETER	
pH	7.9
Conductivity	49915
Temperature	27.7
DO	4.56ppm 70.2%
ORP	71.6
Turbidity TDS	311 22.50

SPC 47903

COLOUR: clear  
 SHEEN?: none.  
 NOTES: clean, clear water, no odour.

Sampling Method:

Field staff: JO

Data Recorder(s): JO.

**Station Information:** WPO20

Sample Location: VR-M-SW03 Duplicate: / Date: 13.3.14  
 Water depth: 1m Rinsate: / Depth Sampled: 30cm Time: 1145

**Station Location and Description:**

GPS (UTM) S6 EASTING: 0362567 NORTHING: 6329657 AVG. ERROR: ± 2m. marked

Description: centre of bay

Notes:

**Field Parameters:**

PARAMETER	
pH	7.82
Conductivity	47839
Temperature	26.0
DO	4.45ppm 67%
ORP	65.5
Turbidity TDS	305 24.0

SPC 46961

COLOUR: clear  
 SHEEN?: none  
 NOTES: clean, clear, no odour

Sampling Method:

Field staff: JO

Data Recorder(s): JO



**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

**Station Information:** W1P021

Sample Location: VR-m-SW04 Duplicate: / Date: 13-3-14  
 Water depth: 1m Rinsate: / Depth Sampled: 30cm Time: 1215

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0362488 NORTHING: 6329454 AVG. ERROR: ± 2m marked

Description: centre of bay.

Notes:

**Field Parameters:**

PARAMETER	
pH	7.84
Conductivity	47813
Temperature	25.9
DO	4.54ppm 64.4%
ORP	61.6
Turbidity TDS	30576.00

SPC 47033.

COLOUR: clear  
 SHEEN?: ~~clear~~ none  
 NOTES: clear, clean, no odour

Sampling Method:

Field staff: JO

Data Recorder(s): JO

**Station Information:** W1P022

Sample Location: VR-m-SW06 Duplicate: / Date: 13-3-14  
 Water depth: 80cm Rinsate: / Depth Sampled: 40cm Time: 1245

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0362607 NORTHING: 6329301 AVG. ERROR: ± 3m marked

Description: towards southern end of bay.

Notes:

**Field Parameters:**

PARAMETER	
pH	7.90
Conductivity	49256
Temperature	27.3
DO	4.85ppm 67.7%
ORP	46.0
Turbidity TDS	30667.00

SPC 47153

COLOUR: clear  
 SHEEN?: oily sheen  
 NOTES: no odour

Sampling Method:

Field staff: JO

Data Recorder(s): JO.

**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

**Station Information:** WP 023

Sample Location: VR-m-SW05 Duplicate: / Date: 13-3-14  
 Water depth: 0.80m Rinsate: / Depth Sampled: 0.40 Time: 1345

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0362830 NORTHING: 6329600 AVG. ERROR: ± 3m marked

Description: on ~~to~~ near bank shallow arm/runier.

Notes:

**Field Parameters:**

PARAMETER	
pH	7.63
Conductivity	50985
Temperature	27.4
DO	4.60 ppm 72.5%
ORP	10.0
Turbidity TDS	31525.00

SPC 48749

COLOUR: ~~ob~~ clear  
 SHEEN?:  
 NOTES: clear, shallow, slightly turbid

Sampling Method:

Field staff: JO

Data Recorder(s): JO.

**Station Information:** WP ~~023~~ 025

Sample Location: VR-C-SW06 Duplicate: / Date: 13-3-14  
 Water depth: ~~0.80m~~ Rinsate: / Depth Sampled: ~~0.40~~ Time: 1615  
 201-130314-JO

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0359909 NORTHING: 6329461 AVG. ERROR: ± 6m marked

Description: shallow creek.

Notes:

**Field Parameters:**

PARAMETER	
pH	6.47
Conductivity	15697
Temperature	25.3
DO	3.12 ppm 40.2%
ORP	109.6
Turbidity TDS	10075.00

SPC 15470

COLOUR: orange tinge  
 SHEEN?: -  
 NOTES: shallow, no colour

Sampling Method:

Field staff: JO

Data Recorder(s): JO.

**SURFACE WATER FIELD NOTES**

PROJECT #:

**Station Information:** WIP 025

Sample Location: VR-CSW06 Duplicate: / Date: 13.03.14

Water depth: ~30cm Rinsate: RO1 Depth Sampled: ~10cm Time: 1620  
RO1-150314-JD

**Station Location and Description:**

GPS (UTM) 56 EASTING: 0359909 NORTHING: 6329461 AVG. ERROR: ±6m marked

Description: shallow creek, ~10m wide, shallow, clay banks.

Notes:

**Field Parameters:**

PARAMETER	
pH	<u>6.47</u>
Conductivity	<u>15697</u>
Temperature	<u>25.3</u>
DO ppm	<u>3.12</u> <u>40.2%</u>
ORP	<u>109.6</u>
Turbidity TDS	<u>10075.00</u>

SPC 15470

COLOUR: orange tint  
 SHEEN?: none  
 NOTES: no odour, shallow  
orange very  
slight orange tinge

Sampling Method:

pole

Field staff: JD

Data Recorder(s): JD,

**Station Information:** WIP 026

Sample Location: VR-CSW07 Duplicate: DOB-140314-JD Date: 14.03.14

Water depth: ~20cm Rinsate: / Depth Sampled: ~10cm Time: 0810

triplicate JD2-140314-JD

**Station Location and Description:**

GPS (UTM) 56 EASTING: 0359658 NORTHING: 6328906 AVG. ERROR: ±6m. marked

Description: shallow creek, ~8m wide,

Notes:

**Field Parameters:**

PARAMETER	
pH	<u>6.08</u>
Conductivity	<u>2726</u>
Temperature	<u>19.7</u>
DO	<u>4.03 ppm</u> <u>49.3%</u>
ORP	<u>124.0</u>
Turbidity TDS	<u>1969.50.</u>

SPC 3034

COLOUR: slight orange tinge.  
 SHEEN?:  
 NOTES: slight orange tinge.

Sampling Method:

pole

Field staff: JD / Bioanalysis

Data Recorder(s): JD

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** VR T-SS01 WIP001

Sample Location: VR T-SS01 Duplicate: D02-110314-JD Date: 11-3-14  
 Original Alternative Rinsate: \_\_\_\_\_ Water Depth: 2.8 Time: 1155

**Station Location and Description:**

GPS (UTM) EASTING: 0361533 NORTHING: 6332344 AVG. ERROR: ±2m marked

Description: silt silty, black/grey, large shell fragments, mussels, NO, wet, no staining.

Notes: \_\_\_\_\_

**Sediment Characteristics:**

		ATTEMPT #	1										
		penetration (cm)	20										
SAMPLE QUALITY	excellent												
	good	✓											
	fair												
	poor												
COLOUR	brown												
	grey												
	black	✓											
	reddish												
DEBRIS	shells/fragments	✓											
	woody debris												
	anthropogenic												
ODOUR	HC	✓											
	H2S	✓											
VISUAL	sheen												

Sampling Method: Grab

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	10
silt	90
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample VR-T-SS01

Field staff: JD

description: silty, black/grey,

Notes: fine

Biota: mussels.

Data Recorder(s): JD

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP002

Sample Location: VR-T-SS02 Duplicate: D03-110314-JO date: 11.3.14  
 Original Alternative Rinsate: \_\_\_\_\_ Water Depth: 3.7 Time: 1245  
TRIPLICATE TOT. 110314-JO

**Station Location and Description:**

GPS (UTM):<sup>S6</sup> EASTING: 0365011 NORTHING: 632202 AVG. ERROR: ±3m marked

Description: silty, dark grey, large shell fragments  
fine particles, wet, medium to low plasticity.

Notes: \_\_\_\_\_

**Sediment Characteristics:**

	ATTEMPT #	<u>1</u>										
	penetration (cm)	<u>20</u>										
SAMPLE QUALITY	excellent											
	good	<input checked="" type="checkbox"/>										
	fair											
	poor											
COLOUR	brown											
	grey	<input checked="" type="checkbox"/>										
	black	<input checked="" type="checkbox"/>										
	reddish											
DEBRIS	shells/fragments	<input checked="" type="checkbox"/>										
	woody debris											
	anthropogenic											
ODOUR	HC											
	H2S											
VISUAL	sheen											

Sampling Method: grab.

Collection Effort: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	
silt	<u>100</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample VR-T-SS02.  
 description: \_\_\_\_\_  
 \_\_\_\_\_

Field staff: JO

Notes: \_\_\_\_\_

Biota: large shell fragments

Data Recorder(s): JO

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP003

Sample Location: VR-ESS03 Duplicate: / Date: 11-3-14  
 Original Alternative Rinsate: / Water Depth: 2.1 Time: 1336

**Station Location and Description:**

GPS (UTM): <sup>56</sup> EASTING: 0366202 NORTHING: 6328892 AVG. ERROR: ± 3 marked

Description: fine, silty, anoxic, viscous, low-med plasticity, wet, consistent.

Notes: \_\_\_\_\_

**Sediment Characteristics:**

	ATTEMPT #	<u>1</u>								
	penetration (cm)	<u>~20</u>								
SAMPLE QUALITY	excellent									
	good	<input checked="" type="checkbox"/>								
	fair									
	poor									
COLOUR	brown									
	grey	<input checked="" type="checkbox"/>								
	black	<input checked="" type="checkbox"/>								
	reddish									
DEBRIS	shells/fragments	<input checked="" type="checkbox"/>								
	woody debris									
	anthropogenic									
ODOUR	HC									
	H2S	<input checked="" type="checkbox"/>								
VISUAL	sheen									

Sampling Method: grab.

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	
silt	<u>100</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: \_\_\_\_\_

Field staff: JD

Notes: \_\_\_\_\_

Biota: None

Data Recorder(s): JD

WPO4

SEDIMENT LOG SHEET

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

Station Information: WPO04

Sample Location: VR-V-SS03 Duplicate: / Date: 11.3.14  
Original Alternative Rinsate: / Water Depth: 3 Time: 1430

Station Location and Description:

GPS (UTM): EASTING: \_\_\_\_\_ NORTHING: \_\_\_\_\_ AVG. ERROR: \_\_\_\_\_ marked

Description: gummy, silty, small amt of sand. no colour, black/grey, wet,

Notes: \_\_\_\_\_

Sediment Characteristics:

	ATTEMPT #									
	penetration (cm)									
SAMPLE QUALITY	excellent									
	good	✓								
	fair									
	poor									
COLOUR	brown									
	grey	✓								
	black	✓								
	reddish									
DEBRIS	shells/fragments									
	woody debris									
	anthropogenic									
		NA								
ODOUR	HC	NA								
	H2S	NA								
VISUAL	sheen	NA								

Sampling Method: Grab

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	10
silt	90
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample VR-V-SS03  
description: \_\_\_\_\_

Field staff: JO

Notes: \_\_\_\_\_

Biota: none

Data Recorder(s): JO



**SEDIMENT LOG SHEET**

PROJECT #: 0237747

WPOS

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:**

Sample Location: VR-V-5502

Duplicate: /

Date: 11.3.14

Original          Alternative

Rinsate: /

Water Depth: ~~2m~~ 4.3m      Time: 1450

**Station Location and Description:**

GPS (UTM): EASTING: \_\_\_\_\_ NORTHING: \_\_\_\_\_ AVG. ERROR: \_\_\_\_\_ marked

Description: thick, gummy, small and large shell fragments, silty, no odour, no sheen

Notes: \_\_\_\_\_

**Sediment Characteristics:**

		ATTEMPT #	<u>1</u>							
		penetration (cm)	<u>20</u>							
SAMPLE QUALITY	excellent									
	good	<input checked="" type="checkbox"/>								
	fair									
	poor									
COLOUR	brown									
	grey	<input checked="" type="checkbox"/>								
	black	<input checked="" type="checkbox"/>								
	reddish									
DEBRIS	shells/fragments	<input checked="" type="checkbox"/>								
	woody debris									
	anthropogenic									
ODOUR	HC									
	H2S									
VISUAL	sheen									

Sampling Method: grab.

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	<u>5</u>
silt	<u>95</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: \_\_\_\_\_

Field staff: JB

Notes: \_\_\_\_\_

Biota: small shells, mussels

Data Recorder(s): JB

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP006

Sample Location: VR-V-SS01 Duplicate: / Date: 11.3.14  
 Original Alternative Rinsate: / Water Depth: 2.7 Time: 1515

**Station Location and Description:**

GPS (UTM): 56 EASTING: 036 4933 NORTHING: 6330500 AVG. ERROR: ±3m. marked

Description: fine, dark grey, black, gummy, large + small shell fragments, silty, small sections of clay/silty material. no odour, no shells.

Notes:

**Sediment Characteristics:**

		ATTEMPT #	1										
		penetration (cm)	~20										
SAMPLE QUALITY	excellent												
	good												
	fair	✓											
	poor												
COLOUR	brown												
	grey	✓											
	black	✓											
	reddish												
DEBRIS	shells/fragments	✓											
	woody debris												
	anthropogenic												
ODOUR	HC												
	H2S												
VISUAL	sheen												

Sampling Method: grab

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	10
silt	90
clay	2
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: fine

Field staff: JO

Notes:

Biota: shell fragments

Data Recorder(s): JO

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

WP007

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:**

Sample Location: VR-W-SW04

Duplicate: /

Date: 11-3-14

Original      Alternative

Rinsate: /

Water Depth: 1.8      Time: 1610

**Station Location and Description:**

GPS (UTM) EASTING: 0363185      NORTHING: 6330898      AVG. ERROR: ±2m      marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Sediment Characteristics:**

	ATTEMPT #	<u>1</u>								
	penetration (cm)	<u>20</u>								
SAMPLE QUALITY	excellent	<u>✓</u>								
	good									
	fair									
	poor									
COLOUR	brown									
	grey	<u>✓</u>								
	black	<u>✓</u>								
	reddish									
DEBRIS	shells/fragments									
	woody debris									
	anthropogenic									
ODOUR	HC									
	H2S	<u>✓</u>								
VISUAL	sheen									

Sampling Method: grab.

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	<u>5</u>
silt	<u>95</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: \_\_\_\_\_

Field staff: JD

Slight H<sub>2</sub>S odour - very faint.  
silty, gummy, wet, fine, no shell fragments.

Notes: \_\_\_\_\_

Data Recorder(s): JD

Biota: none.

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP008

Sample Location: VR\_W\_SSD3  
 Original Alternative

Duplicate: /  
 Rinsate: /

Date: 12-3-14  
 Water Depth: 1.2 Time: 1630

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0362857 NORTHING: 6330705 AVG. ERROR: ± 3 m. marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Sediment Characteristics:**

		ATTEMPT #											
		penetration (cm)											
SAMPLE QUALITY	excellent	<input checked="" type="checkbox"/>											
	good												
	fair												
	poor												
COLOUR	brown												
	grey	<input checked="" type="checkbox"/>											
	black	<input checked="" type="checkbox"/>											
	reddish												
DEBRIS	shells/fragments	<input checked="" type="checkbox"/>											
	woody debris												
	anthropogenic												
ODOUR	HC												
	H2S	<input checked="" type="checkbox"/>											
VISUAL	sheen												

Sampling Method: grab

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	
silt	<u>100</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample \_\_\_\_\_

Field staff: JD

description: Slight H2S odour, gummy, silty, black grey, wet, small-medium shell fragments

Notes: \_\_\_\_\_

Data Recorder(s): JD

Biota: shell fragments

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP 009

Sample Location: VR-W-SS02 Duplicate: 1 Date: 11.3.14  
 Original Alternative Rinsate: 1 Water Depth: 0.3 Time: 1640

**Station Location and Description:**

GPS (UTM) EASTING: 0362848 NORTHING: 6330475 AVG. ERROR: ±3m marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Sediment Characteristics:**

		ATTEMPT #	<u>1</u>							
		penetration (cm)	<u>20</u>							
SAMPLE QUALITY	excellent									
	good	<input checked="" type="checkbox"/>								
	fair									
	poor									
COLOUR	brown									
	grey	<input checked="" type="checkbox"/>								
	black									
	reddish									
DEBRIS	shells/fragments	<input checked="" type="checkbox"/>								
	woody debris									
	anthropogenic									
ODOUR	HC	<u>~</u>								
	H2S	<u>~</u>								
VISUAL	sheen									

Sampling Method: grab

Collection Effort: \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	<u>10</u>
silt	<u>90</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: large percentage of shell fragments. silty, sand, black / grey, wet

Notes: \_\_\_\_\_

Biota: shell fragments

Field staff: JD

Data Recorder(s): JD

**SEDIMENT LOG SHEET**

PROJECT #: 0237747

CONSECUTIVE STN # \_\_\_\_\_

**Station Information:** WP 010

Sample Location: VR-W-SS01 Duplicate: / Date: 11-3-14  
 Original Alternative Rinsate: / Water Depth: 0.9 Time: 1700

**Station Location and Description:**

GPS (UTM) EASTING: 0362912 NORTHING: 6330024 AVG. ERROR: ±2m marked

Description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Notes: \_\_\_\_\_

**Sediment Characteristics:**

		ATTEMPT #	<u>1</u>							
		penetration (cm)	<u>20</u>							
SAMPLE QUALITY	excellent	<input checked="" type="checkbox"/>								
	good									
	fair									
	poor									
COLOUR	brown									
	grey									
	black	<input checked="" type="checkbox"/>								
	reddish									
DEBRIS	shells/fragments									
	woody debris									
	anthropogenic									
	<u>algae</u>	<input checked="" type="checkbox"/>								
ODOUR	HC									
	H2S	<input checked="" type="checkbox"/>								
VISUAL	sheen									

Sampling Method: grab  
 Collection Effort: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Grain Size	Approx. %
gravel	
sand	
silt	<u>100</u>
clay	
OM	

# grabs/cores in composite: \_\_\_\_\_

Sample description: anoxic, strong H<sub>2</sub>S odour black, wet, gummy, silty, small % of shell fragments, high amount of algae, seaweed.  
 Notes: \_\_\_\_\_  
 Biota: algae, seaweeds, shell fragments

Field staff: JO  
 Data Recorder(s): JO



**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

WP006

**Station Information:**

Sample Location: VR-V-SW01

Duplicate: /

Date: 11.03.14

Water depth: 2.7

Rinsate: /

Depth Sampled: ~2m Time: 1510

**Station Location and Description:**

GPS (UTM): 56 EASTING: 6364438 NORTHING: 6330500

AVG. ERROR: ± 3m marked

Description: clear, clean, NO odour

Notes:

**Field Parameters:**

PARAMETER	
pH	8.16
Conductivity	51472
Temperature	27.2
DO	6.54 96.9%
ORP	<del>80.8</del> 80.8
Turbidity TDS	32 110.00

SPC 49353

COLOUR: clear

SHEEN?: none

NOTES:

no odour

Sampling Method:

pole

Field staff: JO

Data Recorder(s): JO

**Station Information:**

Sample Location: VR-W-SW04

Duplicate: /

Date: 11.3.14

Water depth: 1.8m

Rinsate: /

Depth Sampled: 1.5m Time: 1600

**Station Location and Description:**

WP007

GPS (UTM): 56 EASTING: 0363185 NORTHING: 6330898

AVG. ERROR: ± 2m marked

Description: clean, clear

Notes:

**Field Parameters:**

PARAMETER	
pH	8.06
Conductivity	48684
Temperature	29.1
DO	6.49 89.9%
ORP	-22.2
Turbidity	29321.60

SPC 45161

COLOUR: none

SHEEN?: none

NOTES:

no sheen, no odour

Sampling Method:

pole

Field staff: JO

Data Recorder(s): JO



**SURFACE WATER FIELD NOTES**

PROJECT #: 0237747

WPO05

**Station Information:**

Sample Location: VR-V-SW02

Duplicate: 1

Date: 11-3-14

Water depth: 4.3

Rinsate: 1

Depth Sampled: 2m Time: 1445

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0364721 NORTHING: 6330959 AVG. ERROR: ± 3m. marked

Description: clean clear.

Notes:

**Field Parameters:**

PARAMETER	
pH	8.15
Conductivity	51156
Temperature	26.9
DO	6.42 95.1%
ORP	81.1
Turbidity TDS	32045.00

SPC 49327

COLOUR: ~~no~~ clear

SHEEN?: none

NOTES:

no odour

Sampling Method:

pole sampler

Field staff: JD

Data Recorder(s): JD

**Station Information:**

Sample Location: \_\_\_\_\_

Duplicate: \_\_\_\_\_

Date: \_\_\_\_\_

Water depth: \_\_\_\_\_

Rinsate: \_\_\_\_\_

Depth Sampled: \_\_\_\_\_ Time: \_\_\_\_\_

**Station Location and Description:**

GPS (UTM): EASTING: \_\_\_\_\_ NORTHING: \_\_\_\_\_ AVG. ERROR: \_\_\_\_\_ marked

Description: \_\_\_\_\_

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	
Conductivity	
Temperature	
DO	
ORP	
Turbidity	

COLOUR: \_\_\_\_\_

SHEEN?: \_\_\_\_\_

NOTES: \_\_\_\_\_

Sampling Method: \_\_\_\_\_

Field staff: \_\_\_\_\_

Data Recorder(s): \_\_\_\_\_

**SURFACE WATER FIELD NOTES**

PROJECT #: ~~WP03~~ 0237747

**Station Information:** WP003

Sample Location: VR-TSW03 Duplicate: - Date: 11-3-14  
 Water depth: 2.1 Rinsate: - Depth Sampled: 1.6 Time: 1330

**Station Location and Description:** 2#

GPS (UTM): 56 EASTING: 0366202 NORTHING: 6328892 AVG. ERROR: ± 3 marked

Description: clean, clear, no odour,

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	8.06
Conductivity	50785
Temperature	26.7
DO	6.95 92.3%
ORP	82.3
Turbidity	32045.00

SPC 49281

COLOUR: clear.  
 SHEEN?: No  
 NOTES: \_\_\_\_\_

Sampling Method: \_\_\_\_\_

Field staff: \_\_\_\_\_

Data Recorder(s): \_\_\_\_\_

**Station Information:** WP004

Sample Location: VR-V-SW03- Duplicate: / Date: 11-3-14  
 Water depth: 3.0 Rinsate: / Depth Sampled: -2m Time: 1420

WP004

**Station Location and Description:**

GPS (UTM): 56 EASTING: 0365168 NORTHING: 6331336 AVG. ERROR: ± 2m, marked

Description: clear, clean

Notes: \_\_\_\_\_

**Field Parameters:**

PARAMETER	
pH	8.06
Conductivity	50489
Temperature	26.3
DO ppm	5.72 83.6%
ORP	81.4
Turbidity TDS	32045.00

SPC 49317

COLOUR: \_\_\_\_\_  
 SHEEN?: \_\_\_\_\_  
 NOTES: no odour, no sheen, clear clear appearance.

Sampling Method: \_\_\_\_\_

Field staff: JD

Data Recorder(s): JD

**SURFACE WATER FIELD NOTES**  
PROJECT #: 0237747

WP001

**Station Information:** WP001  
 Sample Location: VR-T-SW01 Duplicate: D01-110314-JD Date: 11.3.14  
 Water depth: 2.4 Rinsate: / Depth Sampled: 2m Time: 1125

**Station Location and Description:**  
 GPS (UTM): 50 EASTING: 0361533. NORTHING: 6332344 AVG. ERROR: ±2m marked   
 Description: shallow bay  
 Notes:

**Field Parameters:**

PARAMETER	
pH	8.16
Conductivity	52367
Temperature	28.3
DO ppm	6.90 / 106.4%
ORP	80.6
Turbidity TDS	32045.00

COLOUR: clear  
 SHEEN?: none.  
 NOTES: no odour

Sampling Method: pole sampler  
 Field staff: JD  
 Data Recorder(s): JD

SPC 49369.

**Station Information:** WP002  
 Sample Location: VR-T-SW02 Duplicate: D04-110314-JD Date: 11.3.14  
 Water depth: 3.2 Rinsate: / Depth Sampled: 3.0 Time: 1240  
 TRIPPLICATE 102-110314-JD

WP02

**Station Location and Description:**  
 GPS (UTM): 50 EASTING: 0365011. NORTHING: 6332202 AVG. ERROR: ±3. marked   
 Description: clean, clear, no odour.  
 Notes:

**Field Parameters:**

PARAMETER	
pH	8.13
Conductivity	50644
Temperature	26.5
DO ppm	6.25 / 94.5%
ORP	93.7
Turbidity TDS	31987.00

COLOUR:  
 SHEEN?:  
 NOTES: no odour, clean clear appearance

Sampling Method: pole  
 Field staff: JD  
 Data Recorder(s): JD

SPC 49332.

✓

VA

**GROUNDWATER MONITORING REPORT**

<b>Client:</b> DELTA	<b>Job No:</b> 0237747
<b>Project:</b> SYMPHONY	<b>Well ID:</b> VA-MW01
<b>Location:</b> VALES POINT - POWER STATION	<b>Total Depth (m):</b> 2.640

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	K. Mullan	X	Before	SWL (m): 0.606	
<b>Date:</b>	20/3/14		Time: 13:07.		
<b>Well Atmosphere (ppm):</b>	---		After	SWL (m): 0.627.	
<b>Method:</b>	Submersible		Time: 13:51		
<b>Total Volume Removed (L):</b>	80L		Depth to Product (m):	---	
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> 2.767 / 2.640					

**Comments (Before and After Developing):** > 10 well volumes removed.  
**Appearance and Odours:** Grey to light brown, silty - After = light brown, cloudy.  
**Other:** Total Depth reduced following development  
 Well Vol = 2.161 x 1.96 = 4.236.

**WELL PURGING:**

<b>Sampler:</b>		Before	SWL (m):	
<b>Date:</b>			Time:	
<b>Well Atmosphere (ppm):</b>		After	SWL (m):	
<b>Method:</b>			Time:	
<b>Total Volume Removed (L):</b>		<b>Depth to Product (m):</b>		

**WELL PURGING - FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>																			
<b>Time:</b>																			
<b>Temp:</b>																			
<b>DO (% or ppm):</b>																			
<b>EC (αS or mS):</b>																			
<b>pH:</b>																			
<b>Eh (mV):</b>																			
<b>Comments:</b>																			
<b>Appearance and Odours:</b>																			
<b>Other:</b>																			

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp.:</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (αS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**

Field Filtration Performed

<b>Notes:</b> 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b>  <b>Date:</b>
--	--



18/5/14

### GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VA-MW02
Location: Vales Point - Power Station	Total Depth (m): 13.860

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean		Before	SWL (m): 1.503	
Date:	19/3/14			Time: 16:30	
Well Atmosphere (ppm):	—		After	SWL (m): 2.110	
Method:	Submersible			Time: 15:13	
Total Volume Removed (L):	140L		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): 13.857 / 13.860					

Comments (Before and After Developing): Development stopped after 140L. Water clear.

Appearance and Odours: Cloudy to clear

Other: Well Vol = 13.857 - 1.503 = 12.354 x 1.96 = 24.214 L.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VA-MW03
Location: Vales Point - Power Station	Total Depth (m): 11.597

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler:	K. McLean	K. McLean	Before	SWL (m):	1.195	1.269
Date:	20/03/14	21/3/14		Time:	14:20	09:08
Well Atmosphere (ppm):			After	SWL (m):	10.492	10.393
Method:	Submersible	Submersible		Time:	15:10	09:52
Total Volume Removed (L):	37	30		Depth to Product (m):		

Total Depth to Bottom of Well - Before & After Development (m): 1) 11.593 / 11.597    2) 11.597 / 11.597

Comments (Before and After Developing): Slow recharge + developed stopped, CW turbid.

Appearance and Odours: Off white, no odour, Utility - Still turbid, no change

Other:

Well Vol = 10.398 x 1.96 = 20.3801

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747.</u>
Project: <u>Symphony</u>	Well ID: <u>VA-MW04.</u>
Location: <u>Vales Point - Power Station</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>K. Mclean</u>	<u>" "</u>	Before	SWL (m): <u>2.2850</u>	
Date:	<u>21/3/14</u>	<u>21/3/14</u>		Time: <u>08:05</u>	
Well Atmosphere (ppm):	<u>-</u>		After	SWL (m): <u>4.927.</u>	
Method:	<u>Submersible</u>	<u>" "</u>		Time: <u>08:40</u>	
Total Volume Removed (L):	<u>20L</u>	<u>20L</u>	Depth to Product (m):	<u>51</u>	<u>52.</u>
Total Depth to Bottom of Well - Before & After Development (m):				<u>5.837</u>	<u>5.840</u> / <u>5.840</u>

**Comments (Before and After Developing):**  
 Appearance and Odours: light brown silt, no odour. / cleared to cloudy total 40L  
 Other: Purging Dry, slow recharge  
 Well Vol =  $3.552 \times 1.96 = 6.9619$

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (αS or mS):									
pH:									
Eh (mV):									

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

- Notes:**
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:**

**Date:**





## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VA-MW05
Location: Vales Point - Power Station	Total Depth (m): 6.965

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean	K. McLean	Before	SWL (m): 2.830	
Date:	20/3/14	21/3/14		Time: 15:30	
Well Atmosphere (ppm):			After	SWL (m): 2.733	
Method:	100 L	25		Time: 17:00	
Total Volume Removed (L):	Submersible		Depth to Product (m):	-	

Total Depth to Bottom of Well - Before & After Development (m): 6.965 / 6.965

Comments (Before and After Developing): After 85 Litres GW still turbid

Appearance and Odours: Orange/rusty - no odour, extremely silty > 1m.

Other:

Well Vol = 4.135 x 1.96 = 8.1046

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (αS or mS):																				
pH:																				
Eh (mV):																				

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------





VB

**GROUNDWATER MONITORING REPORT**

Client: DELTA	Job No: 0237743
Project: SYMPHONY IV	Well ID: VB_MW01
Location: Power Station A Vales Point	Total Depth (m): 4.033

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean		Before	SWL (m): 0.870	
Date:	18/3/14			Time: 14:52	
Well Atmosphere (ppm):	-		After	SWL (m): 1.818	
Method:	Submersible			Time: 17:00	
Total Volume Removed (L):	65L		Depth to Product (m): -		
Total Depth to Bottom of Well - Before & After Development (m): 3.865 / 4.033					

**Comments (Before and After Developing):**  
 Appearance and Odours: Extremely Silty, beginning around 0.760 mbToc light Brown  
 Other: no odour. >10 well vols removed - water was still slightly turbid.  
 Well Vol = 2.995 x 1.96 = 5.8702

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VB-MW02</b>
Location: <b>Power Station - Vales Point</b>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<del>K. McLEAN</del>	<del>X</del>	Before	SWL (m): <b>1.164</b>	
Date:	<del>20/3/14</del>	<del>X</del>		Time: <b>09:00</b>	<del>X</del>
Well Atmosphere (ppm):	<del>—</del>	<del>X</del>	After	SWL (m): <b>3.923</b>	<del>X</del>
Method:	<del>Submersible</del>	<del>X</del>		Time: <b>10:30</b>	<del>X</del>
Total Volume Removed (L):	<del>SOL</del>	<del>X</del>		Depth to Product (m): <b>—</b>	<del>X</del>
Total Depth to Bottom of Well - Before & After Development (m): <b>4.050</b>					

Comments (Before and After Developing): **Water cloudy, no odour. - very little silt.**  
 Appearance and Odours: **@ COMPLETION - WATER CLEAR, NO ODOUR.**

Other:  
**Well Vol = 2.886 x 1.96 = 5.657.**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used: \_\_\_\_\_  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VB-mw02
Location: VALES POINT - 1	Total Depth (m): 5.269

**WELL FINISH:**  
 Monument      PVC Stand Pipe      Gatic Cover      Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler:	K. MCLEAN		Before	SWL (m):	2.433	<del>X</del>
Date:	26/3/14			Time:	—	
Well Atmosphere (ppm):	—		After	SWL (m):	2.539	
Method:	<del>6</del> ← Submersible			Time:	15:05	
Total Volume Removed (L):	60		Depth to Product (m):		—	—
Total Depth to Bottom of Well - Before & After Development (m): 5.248 / 5.269						

**Comments (Before and After Developing):**  
 Appearance and Odours: Dark grey turbid to very cloudy but still dark grey  
 Other: Sulphur like odour coming from well.  
 Well Vol: 5.517     Total Removed = 60 litres

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (αS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

**Notes:** 1 SWL - Standing water level (m)  
 2 SWL measured from the top of the casing, highest point  
 3 For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:** \_\_\_\_\_  
**Date:** \_\_\_\_\_







## GROUNDWATER MONITORING REPORT

Client: <i>Delta electricity</i>	Job No: <i>0237096</i>
Project: <i>Symphony 4 - Vales part</i>	Well ID: <i>VC MW01</i>
Location: <i>Vales part power station</i>	Total Depth (m): <i>5.54</i>

WELL FINISH:

Monument     
  PVC Stand Pipe     
  Gatic Cover     
  Other:

WELL DEVELOPMENT:

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>T. MIDDLE</i>	<i>K. MURPHY</i>	Before	SWL (m): <i>2.055</i>	<i>5</i>
Date:	<i>25.3.14</i>	<i>26/3/14</i>		Time: <i>9:58am</i>	
Well Atmosphere (ppm):	<i>—</i>	<i>5</i>	After	SWL (m): <i>4.98</i>	<i>5.100</i>
Method:	<i>Submersible</i>	<i>Submersible</i>		Time: <i>10:30</i>	<i>16:45</i>
Total Volume Removed (L):	<i>15L</i>	<i>15L</i>	Depth to Product (m):	<i>—</i>	<i>—</i>

Total Depth to Bottom of Well - Before & After Development (m): *5.54m*

Comments (Before and After Developing): *cloudy no odours, purged dry x2*

Appearance and Odours:

Other:

*3.98.5 x 1.96 = 6.831 L*

WELL PURGING:

Sampler:	Before	SWL (m):
Date:		Time:
Well Atmosphere (ppm):	After	SWL (m):
Method:		Time:
Total Volume Removed (L):		Depth to Product (m):

WELL PURGING - FIELD PARAMETER DATA

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

WELL SAMPLING:

Sampler:	Temp.:
Date:	DO (% or ppm):
Method:	EC (αS or mS):
Before SWL (m):	pH:
Time:	Eh (mV):
Comments:	
Appearance and Odours:	
Other:	

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:  Date:
---	--------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VL_MW02</b>
Location: <b>Vales Point - Power Station</b>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>IL Mclean</b>	<del>X</del>	Before	SWL (m): <b>2.304</b>	
Date:	<b>21/3/14</b>	<del>X</del>		Time: <b>13:03</b>	<del>X</del>
Well Atmosphere (ppm):	<b>-</b>	<del>X</del>	After	SWL (m): <b>2.492</b>	
Method:	<b>Submersible</b>	<del>X</del>		Time: <b>15:27</b>	<del>X</del>
Total Volume Removed (L):	<b>20 + 10</b>	<del>X</del>	Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): <b>3.909 / 4.027</b>					

**Comments (Before and After Developing):**  
 Appearance and Odours: **Light Brown/grey, no odour, very silty from 0.55 to mbtcc.**  
 Other: **Slow recharge left & came back. - Cleared to slightly cloudy**  
**Well Vol. = 3.1458. - Total removed = 30 Litres.**

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VC MW04</i>
Location: <i>Vale's Point</i>	Total Depth (m): <i>bTOL 4.025</i>

WELL FINISH:  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	/	<i>6P</i>	Before	SWL (m): <i>bTOL</i>	<i>1.830</i>
Date:		<i>26/3/14</i>		Time:	<i>1405</i>
Well Atmosphere (ppm):			After	SWL (m): <i>bTOL</i>	<i>3.470</i>
Method:		<i>Submersible</i>		Time:	<i>1430</i>
Total Volume Removed (L):		<i>8+8 = 16</i>	Depth to Product (m):		<i>NA</i>
Total Depth to Bottom of Well - Before & After Development (m):					<i>4.025</i>

Comments (Before and After Developing): *slightly cloudy, No odour, bottom is not silty, good recharge*  
 Appearance and Odours: *purged 8L and dry twice*  
 Other: *—*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

- Notes:
- 1 SWL - Standing water level (m)
  - 2 SWL measured from the top of the casing, highest point
  - 3 For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:  
 Date:



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY-1</b>	Well ID: <b>MW04 (VC)</b>
Location: <b>Vales Point</b>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2	Stage 1	Stage 2
Sampler:	<b>V. McLean</b>		Before SWL (m):	<b>2.775</b>
Date:	<b>25/3/14</b>		Time:	<b>15:45</b>
Well Atmosphere (ppm):			After SWL (m):	<b>3.569</b>
Method:	<b>Submersible</b>		Time:	<b>18:15</b>
Total Volume Removed (L):	<b>11.00</b>		Depth to Product (m):	<b>—</b>
Total Depth to Bottom of Well - Before & After Development (m): <b>4.024 / 4.026</b>				

**Comments (Before and After Developing):**  
**Appearance and Odours:** *Turbid to Cloudy, Light brown,*  
**Other:** *Purged dry, slow recharge.*  
*Well Vol = 2.448. / 25/3/14 Removed = 11L*

**WELL PURGING:**

Sampler:	Before SWL (m):
Date:	Time:
Well Atmosphere (ppm):	After SWL (m):
Method:	Time:
Total Volume Removed (L):	Depth to Product (m):

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (αS or mS):									
pH:									
Eh (mV):									
Comments:									
Appearance and Odours:									
Other:									

**WELL SAMPLING:**

Sampler:	Temp. :	
Date:	DO (% or ppm):	
Method:	EC (αS or mS):	
Before SWL (m):	pH:	
Time:	Eh (mV):	
Comments:		
Appearance and Odours:		
Other:		
Containers Used:		

Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------



## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VC-MW05
Location: Vales Point - Power Station	Total Depth (m): 4.032

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
<b>Sampler:</b>	K. MCLEAN	K. MCLEAN	Before	SWL (m):	1.863	1.864
<b>Date:</b>	24/3/14	25/3/14		Time:	16:15	12:05
<b>Well Atmosphere (ppm):</b>			After	SWL (m):	2.759	2.928
<b>Method:</b>	Submersible	Submersible		Time:	16:48	12:35
<b>Total Volume Removed (L):</b>	20L	20L	<b>Depth to Product (m):</b>			

**Total Depth to Bottom of Well - Before & After Development (m):** 4.032 / 4.032  
**Comments (Before and After Developing):** Well Purged dry multiple times, left to recharge overnight.  
**Appearance and Odours:** Turbid, light brown.  
**Other:**  
 Well Vol. = 229 x 1.96 = 4369. - Total Removed = 40L.

**WELL PURGING:**

<b>Sampler:</b>		Before	SWL (m):	
<b>Date:</b>			Time:	
<b>Well Atmosphere (ppm):</b>		After	SWL (m):	
<b>Method:</b>			Time:	
<b>Total Volume Removed (L):</b>		<b>Depth to Product (m):</b>		

**WELL PURGING - FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>																			
<b>Time:</b>																			
<b>Temp:</b>																			
<b>DO (% or ppm):</b>																			
<b>EC (αS or mS):</b>																			
<b>pH:</b>																			
<b>Eh (mV):</b>																			
<b>Comments:</b>																			
<b>Appearance and Odours:</b>																			
<b>Other:</b>																			

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (αS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	
<b>Comments:</b>			
<b>Appearance and Odours:</b>			
<b>Other:</b>			
<b>Containers Used:</b>			

Field Filtration Performed

**Notes:** 1. SWL - Standing water level (m)  
 2. SWL measured from the top of the casing, highest point  
 3. For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:** \_\_\_\_\_  
**Date:** \_\_\_\_\_





## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VD-MW01</b>
Location: <b>VALES POINT</b>	Total Depth (m): <b>3.543</b>

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean	K. McLean	Before	SWL (m): 0.671	0.672
Date:	25/3/14	27/3/14		Time: —	08:15.
Well Atmosphere (ppm):	—	—	After	SWL (m): 2.884	3.034
Method:	Submersible	Submersible		Time: —	08:50
Total Volume Removed (L):	12	14L	Depth to Product (m):	—	—
Total Depth to Bottom of Well - Before & After Development (m): <b>3.543 / 3.543</b>					

**Comments (Before and After Developing):**  
**Appearance and Odours:** White, Milky colour turbid, no odour, water slightly cloudy  
**Other:** when development was stopped.  
 Well Vol = 5.629.      Lines Reworked = 26L

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

<b>Notes:</b> 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:
	Date:



## GROUNDWATER MONITORING REPORT

**Client:** \_\_\_\_\_ **Job No:** VO-MW0 0237747  
**Project:** Symphony IV **Well ID:** VO-MW02  
**Location:** Vales Park **Total Depth (m):** 4.27-72/3.55m

**WELL FINISH:**

Monument 0.7c  
  PVC Stand Pipe  
  Gatic Cover  
  Other: \_\_\_\_\_

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	<u>K.B</u>		<b>Before</b>	<b>SWL (m):</b> <u>1.02-72/30m by c</u>	
<b>Date:</b>	<u>2/10/14</u>			<b>Time:</b> <u>12.30pm</u>	
<b>Well Atmosphere (ppm):</b>	<u>0.0</u>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>	<u>Pump</u>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>	<u>40 L</u>			<b>Depth to Product (m):</b>	
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> <u>Prior - 1.02m 3</u>					

**Comments (Before and After Developing):** Prior muddy w well d add

**Appearance and Odours:**

**Other:**

**WELL PURGING:**

<b>Sampler:</b>		<b>Before</b>	<b>SWL (m):</b>	
<b>Date:</b>			<b>Time:</b>	
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>			<b>Depth to Product (m):</b>	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):										
<b>Time:</b>										
<b>Temp:</b>										
<b>DO (% or ppm):</b>										
<b>EC (µS or mS):</b>										
<b>pH:</b>										
<b>Eh (mV):</b>										

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (µS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

**Notes:** 1. SWL – Standing water level (m)  
 2. SWL measured from the top of the casing, highest point  
 3. For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:** \_\_\_\_\_  
**Date:** \_\_\_\_\_







## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: Symphony IV	Well ID: FVD_MW04
Location: Vales Point	Total Depth (m): <del>3.6</del> 3.93

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2	Stage 1	Stage 2
Sampler:	K. Bliston		Before	SWL (m): 1.05 m bgl
Date:	21/03/2014			Time: 3:30
Well Atmosphere (ppm):	D.O		After	SWL (m):
Method:	Pump.			Time:
Total Volume Removed (L):	40L		Depth to Product (m):	
Total Depth to Bottom of Well - Before & After Development (m):				

Comments (Before and After Developing): Very sl sediment taken water @ beginning. Milky white in color  
 Appearance and Odours: - Milky white - turning towards 40L, no odour  
 Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------





## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony</i>	Well ID: <i>VE_MW02</i>
Location: <i>Vales Point - Delta Electricity</i>	Total Depth (m): <i>4.032</i>

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <i>Chris Masters</i>			Before	SWL (m): <i>1.355</i>	
Date: <i>21/3/14</i>				Time: <i>1505</i>	
Well Atmosphere (ppm): <i>-</i>			After	SWL (m): <i>3.626</i>	
Method: <i>Monsoon</i>				Time: <i>1513</i>	
Total Volume Removed (L): <i>30L</i>			Depth to Product (m):	<i>-</i>	

Total Depth to Bottom of Well - Before & After Development (m):  
 Comments (Before and After Developing): *~ 6 well vols. removed.*  
 Appearance and Odours: *Brown, turbid, slight H<sub>2</sub>S odour*  
 Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:	<i>N/A</i>																		
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:	<i>N/A</i>		
Appearance and Odours:			
Other:			

**Containers Used:**  Field Filtration Performed

<p>Notes:</p> <ol style="list-style-type: none"> <li>1 SWL - Standing water level (m)</li> <li>2 SWL measured from the top of the casing, highest point</li> <li>3 For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<p>Checked By: _____</p> <p>Date: _____</p>
--	---

## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0237747
Project: SYMPHONY	Well ID: VE MW03
Location: VALES POINT.	Total Depth (m): 4.732

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean	K. McLean	Before	SWL (m): 1.557	1.517
Date:	26/3/14	27/3/14		Time: 15:45	09:00
Well Atmosphere (ppm):	—		After	SWL (m): 3.616	3.239
Method:	Submersible	Submersible		Time: 16:15	09:55
Total Volume Removed (L):	31	346	Depth to Product (m):	—	

Total Depth to Bottom of Well - Before & After Development (m): 6.731, 4.732

Comments (Before and After Developing): Still turbid @ 31L - had cleaned ~~orange~~ slightly.

Appearance and Odours: Silt - Red/orange, Water - light brown, turbid

Other: Plugged Dry  
6.221. Total Removed = 65L

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:  Date:
---	--------------------------





VF

**GROUNDWATER MONITORING REPORT**

Client: <u>DELTA</u>	Job No: <u>237747</u>
Project: <u>Symphony</u>	Well ID: <u>VF MW01</u>
Location: <u>waste oil storage Area</u>	Total Depth (m): <u>5.900</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>S. NUTHALAPATI</u>		Before	SWL (m): <u>1.950</u>	
Date:	<u>21.03.14</u>			Time: <u>15:24</u>	
Well Atmosphere (ppm):	<u>-</u>		After	SWL (m): <u>5.170</u>	
Method:	<u>MANUPOON</u>			Time: <u>15:45</u>	
Total Volume Removed (L):	<u>62L</u>		Depth to Product (m):	<u>-</u>	
Total Depth to Bottom of Well - Before & After Development (m): <u>5.900 &amp; 5.900</u>					

Comments (Before and After Developing): One well volume: 8L. Cloudy at first dipping. no Appearance and Odours: Sediment attached to the TP Probe. Slightly cloudy. no odour  
 Other: after Purging. Fast recovery.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------





## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No:
Project: SYMPHONY	Well ID: VF-MW03
Location: Waste Oil Storage Area	Total Depth (m): 6.850

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	S. NITHALAPATI		Before	SWL (m): 1.240	
Date:	21.3.14			Time: 15:50	
Well Atmosphere (ppm):	-		After	SWL (m): 4.370	
Method:	MONSOON			Time: 16:40	
Total Volume Removed (L):	85L		Depth to Product (m):	-	
Total Depth to Bottom of Well - Before & After Development (m): 6.840 & 6.850					

**Comments (Before and After Developing):** one well volume 11L. Purge water is bright orange  
**Appearance and Odours:** in colour at first. Sediment at the tip of the TP Probe.  
**Other:** light orange after purging. NO odour. Fast recovery.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):	Comments:

**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
<b>Comments:</b>			
<b>Appearance and Odours:</b>			
<b>Other:</b>			

**Containers Used:**  Field Filtration Performed

<b>Notes:</b> 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b> <b>Date:</b>
---	------------------------------------





## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>B237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VE MN03</i>
Location: <i>Vales Road</i>	Total Depth (m): <i>bTDC 6.855</i>

WELL FINISH:

Monument    
 PVC Stand Pipe    
 Gatic Cover    
 Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler:	/	<i>GP</i>	Before	SWL (m): <i>bTDC</i>	/	<i>2.230</i>
Date:	/	<i>21/3/14</i>		Time:	/	<i>1335</i>
Well Atmosphere (ppm):	/	-	After	SWL (m): <i>bTDC</i>	/	<i>2.515</i>
Method:	/	<i>Submersible</i>		Time:	/	<i>1350</i>
Total Volume Removed (L):	/	<i>20L</i>		Depth to Product (m):	/	<i>NA</i>
Total Depth to Bottom of Well - Before & After Development (m):						<i>6.855</i>

Comments (Before and After Developing): *bottom is not silty, good recharge*

Appearance and Odours: *cloudy, red-brown, no odour*

Other: *Stopped development - already sampled*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

**Containers Used:**

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>023747</i>
Project: <i>Sydney II</i>	Well ID: <i>VG-MW02</i>
Location: <i>Voiles Point</i>	Total Depth (m): <i>9.675</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>GP</i>		Before	SWL (m): <i>8.008</i>	
Date:	<i>31/3/14</i>			Time: <i>0930</i>	
Well Atmosphere (ppm):	<i>~</i>		After	SWL (m): <i>8.625</i>	
Method:	<i>Submersible</i>			Time: <i>1100</i>	
Total Volume Removed (L):	<i>30</i>			Depth to Product (m): <i>NA</i>	
Total Depth to Bottom of Well - Before & After Development (m):				<i>9.675</i>	
Comments (Before and After Developing): <i>turbid → cloudy → clear</i>					
Appearance and Odours: <i>brown, turbid, no odour, becoming cloudy, becoming clear</i>					
Other:					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------

## GROUNDWATER MONITORING REPORT

Client: <i>Delta Electricity</i>	Job No:
Project: <i>Symphony 7</i>	Well ID: <i>V9 MW01</i>
Location: <i>Vales point</i>	Total Depth (m): <i>19.96</i>

WELL FINISH:

Monument     
  PVC Stand Pipe     
  Gatic Cover     
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>T. Muddle</i>		Before	SWL (m): <i>9.26</i>	
Date:	<i>28.3.14</i>			Time: <i>15.17</i>	
Well Atmosphere (ppm):	<i>—</i>		After	SWL (m): <i>13.86</i>	
Method:	<i>Monyon</i>			Time: <i>16.21</i>	
Total Volume Removed (L):	<i>65 L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): <i>19.96</i>					

Comments (Before and After Developing): *Red & thick at commencement, cloudy*

Appearance and Odours: *on completion of stage 1. no odours*

Other: *well volume @ commencement 10.19L (5.2 x 1.96)*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:  Date:
---	--------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VG-MW03</b>
Location: <b>VALES POINT</b>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. Mclean		Before	SWL (m): <b>8.127.</b>	
Date:	28/3/14			Time: <b>13:40</b>	
Well Atmosphere (ppm):			After	SWL (m): <b>9.540</b>	
Method:	Submersible			Time: <b>14:30.</b>	
Total Volume Removed (L):	10 Litres		Depth to Product (m):		—
Total Depth to Bottom of Well - Before & After Development (m):			<b>9.944 / 9.948</b>		

Comments (Before and After Developing): **1st Purge = ~6L.**

Appearance and Odours: **Slightly Cloudy, no odour.**

Other: **Well Vol = 3.561 / Purged dry very slow recharge.**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VG-MW04</b>
Location: <b>VALES POINT.</b>	Total Depth (m): <b>13.597</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>K. McLEAN</b>	<b>K. McLEAN</b>	Before	SWL (m): <b>7.882</b>	<b>7.918</b>
Date:	<b>26.3.14</b>	<b>28/3/14</b>		Time: <b>16:35</b>	<b>13:15</b>
Well Atmosphere (ppm):	<b>—</b>	<b>—</b>	After	SWL (m): <b>12.209</b>	<b>12.908</b>
Method:	<b>Submersible</b>	<b>Submersible</b>		Time: <b>17:00</b>	<b>14:45</b>
Total Volume Removed (L):	<b>25</b>	<b>35</b>	Depth to Product (m): <b>—</b>		
Total Depth to Bottom of Well - Before & After Development (m): <b>13.597 / 13.597</b>					

**Comments (Before and After Developing):**  
 Appearance and Odours: **Water slightly cloudy / clear / Stage 2: Well purged dry.**  
 Other: **Pump malfunction @ 25 Litres. / Well Vol = 11.201.**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------

## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VL-MW02</i>
Location: <i>Vales Point</i>	Total Depth (m): <i>4.017</i>

**WELL FINISH:**

Monument     
  PVC Stand Pipe     
  Gatic Cover     
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>GP</i>		Before	SWL (m): <i>0.762</i>	<i>2</i>
Date:	<i>31/7/14</i>			Time: <i>0840</i>	
Well Atmosphere (ppm):	<i>-</i>		After	SWL (m): <i>2.710</i>	
Method:	<i>Submersible</i>			Time: <i>0910</i>	
Total Volume Removed (L):	<i>60</i>			Depth to Product (m): <i>na</i>	
Total Depth to Bottom of Well - Before & After Development (m):				<i>4.020</i>	

Comments (Before and After Developing): *turbid → cloudy*

Appearance and Odours: *brown, turbid, no odour, becoming cloudy brown*

Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

- Notes:
- 1 SWL – Standing water level (m)
  - 2 SWL measured from the top of the casing, highest point
  - 3 For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:









VJ

**GROUNDWATER MONITORING REPORT**

Client:	Job No: 0237747
Project: <i>Symphony 4 - VP</i>	Well ID: <i>VJ-MW01</i>
Location: <i>VJ</i>	Total Depth (m): <del>7.580</del> <i>8.580</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>5.565</i>	
Date:	<i>20/03/14</i>			Time: <i>10:35</i>	
Well Atmosphere (ppm):	<i>←</i>		After	SWL (m): <i>7.170</i>	
Method:	<i>Monsoon</i>			Time: <i>12:10</i>	
Total Volume Removed (L):	<i>67</i>			Depth to Product (m): <i>—</i>	
Total Depth to Bottom of Well - Before & After Development (m):			Start: <i>8.580</i>	End: <i>8.580</i>	

Comments (Before and After Developing): *IP returned clean on 1st gauge.*  
 Appearance and Odours: *No odour, light red/brown, silty, clearing @ 30L, cloudy/clear @ 55L,*  
 Other: *1 well volume = 5.9*  
*1st purge = 12L, wait 10min, 2nd purge = 11L, wait 10min, 3rd 11L, wait 10min, 4th 11L, wait 10min,*  
**WELL PURGING:** *5th purge 11L, wait 10min, 11L, 6th purge.*

Sampler:	Before	SWL (m):	
Date:		Time:	
Well Atmosphere (ppm):	After	SWL (m):	
Method:		Time:	
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):														
Time:														
Temp:														
DO (% or ppm):														
EC (αS or mS):														
pH:														
Eh (mV):														
Comments:														
Appearance and Odours:														
Other:														

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used:  Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------





## GROUNDWATER MONITORING REPORT

Client: <i>-----</i>	Job No: 0237747
Project: <i>Symphony 4-VP</i>	Well ID: <i>VJ-MW02</i>
Location: <i>VJ</i>	Total Depth (m): <i>5.025</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2	Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before SWL (m):	<i>4.158</i>
Date:	<i>20/03/14</i>		Time:	<i>09:00</i>
Well Atmosphere (ppm):	<i>-----</i>		After SWL (m):	<i>4.370</i>
Method:	<i>Monsoon</i>		Time:	<i>10:10</i>
Total Volume Removed (L):	<i>12</i>		Depth to Product (m):	<i>-----</i>
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 5.020 End: 5.025</i>				

**Comments (Before and After Developing):** *IP returned clean after first gauge.*  
**Appearance and Odours:** *Free flowing, dark brown colour, no odour, lighter in colour @ 8L, clearing at 10L,*  
**Other:** *1 well volume = 1.6L water appears to be clear but pump sits very low on bottom to purge 4L on 1st purge, waited 10min, 2L on 2nd purge, waited 10min, 2L on 3rd purge, waited 15min, 2L on 4th purge, waited 15min, 2L purged drier than pump could purge.*

Sampler:	Before SWL (m):
Date:	Time:
Well Atmosphere (ppm):	After SWL (m):
Method:	Time:
Total Volume Removed (L):	Depth to Product (m):

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:	Temp. :
Date:	DO (% or ppm):
Method:	EC (µS or mS):
Before SWL (m):	pH:
Time:	Eh (mV):
Comments:	
Appearance and Odours:	
Other:	
Containers Used:	

Field Filtration Performed

<b>Notes:</b> <ol style="list-style-type: none"> <li>SWL – Standing water level (m)</li> <li>SWL measured from the top of the casing, highest point</li> <li>For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<b>Checked By:</b> _____ <b>Date:</b> _____
--	--



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4 - VP</i>	Well ID: <i>V5-MW03</i>
Location: <i>V50</i>	Total Depth (m): <i>7.045</i>

WELL FINISH:  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca PTH</i>		Before	SWL (m): <i>3.935</i>	
Date:	<i>19/03/14</i>			Time: <i>14:55</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>6.37</i>	
Method:	<i>Monsoon</i>			Time: <i>16:25</i>	
Total Volume Removed (L):	<i>55L</i>			Depth to Product (m): <i>—————</i>	
Total Depth to Bottom of Well - Before & After Development (m):			Start: <i>7.040</i>	End: <i>7.045</i>	

Comments (Before and After Developing): *IP clean after first gauging.*  
 Appearance and Odours: *Grey/brown fine sediment, sulphur like odours, cloudy/clearing at*  
 Other: *1 well volume = 6L* *40L clear for last 10L.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):														
Time:														
Temp:														
DO (% or ppm):														
EC (µS or mS):														
pH:														
Eh (mV):														

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4-VP</i>	Well ID: <i>VI-MW04</i>
Location: <i>VJ4</i>	Total Depth (m): <i>7.805</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>2.850</i>	
Date:	<i>19/03/14</i>			Time: <i>13:15</i>	
Well Atmosphere (ppm):	<i>—————</i>		After	SWL (m): <i>4.060</i>	
Method:	<i>Monsoon</i>			Time: <i>14:05</i>	
Total Volume Removed (L):	<i>60</i>		Depth to Product (m):		<i>—————</i>
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 7.260 End: 7.805</i>					

Comments (Before and After Developing): *Thick silt on IP after first gauge. IP returned clean on 2<sup>nd</sup>.*  
 Appearance and Odours: *Water is thick with red/brown sediment. Clear for last 10L, no odour.*  
 Other: *1 well volume = 8.6L*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used:  Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VJ_MW05</i>
Location: <i>Vale's Point</i>	Total Depth (m): <i>8.742</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Brooks</i>		Before	SWL (m): <i>6.680</i>	
Date:	<i>25/3/14</i>			Time: <i>16:10</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>Dry</i>	
Method:	<i>Monsoon</i>			Time: <i>16:45</i>	
Total Volume Removed (L):	<i>20L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<i>8.742</i>	

**Comments (Before and After Developing):**  
**Appearance and Odours:**  
 Other: *12L removed 16:10, allowed to recharge after running dry, further 8L removed at 16:45.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**  
**Appearance and Odours:**  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
**Appearance and Odours:**  
 Other:

**Containers Used:**  Field Filtration Performed

<b>Notes:</b> 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b>  <b>Date:</b>
--	--







## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4-VP</i>	Well ID: <i>VJ-MN06</i>
Location: <i>VJ0</i>	Total Depth (m): <i>9.100</i>

WELL FINISH:

Monument
  PVC Stand Pipe
  Gatic Cover
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>	<i>JO</i>	Before	SWL (m): <i>6.820</i>	<i>6.828</i>
Date:	<i>19/03/14</i>	<i>20/3/14</i>		Time: <i>11:15</i>	<i>0900.</i>
Well Atmosphere (ppm):	<i>Monsoon</i>		After	SWL (m): <i>8.450</i>	<i>8.309</i>
Method:	<i>Monsoon</i>	<i>monsoon</i>		Time: <i>12:40</i>	<i>1000.</i>
Total Volume Removed (L):	<i>18</i>	<i>18</i>	Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):			Start: <i>9.100</i>	End: <i>9.100</i>	<i>9.130</i>

Comments (Before and After Developing): *No silt on IP after first gauging.*

Appearance and Odours: *Red/brown, cloudy/clear at 10L, no odour, slow recharge, silty at base.*

Other: *1 well volume = 4.47L* *waited 15min only, able to purge 3L.*

*Need to return on 20/03/14 to complete Stage 2.*

**WELL PURGING:** *20.3.14 - water clear.*

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

**Containers Used:**

Field Filtration Performed

Notes: <ol style="list-style-type: none"> <li>1. SWL - Standing water level (m)</li> <li>2. SWL measured from the top of the casing, highest point</li> <li>3. For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VJ-MW07</i>
Location: <i>Vales Point</i>	Total Depth (m): <i>9.075</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Boreholes</i>		Before	SWL (m): <i>5.500</i>	
Date:	<i>25/3/14</i>			Time: <i>15:20</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>Dry</i>	
Method:	<i>Monsoon</i>			Time: <i>15:50</i>	
Total Volume Removed (L):	<i>34L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<i>9.075</i>	

**Comments (Before and After Developing):**  
 Appearance and Odours: *Colourless, cloudy, no odour.*  
 Other: *20L removed at 15:20, allowed to recharge after running dry, further 15L removed at 15:45*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**  Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------



## GROUNDWATER MONITORING REPORT

**Client:** \_\_\_\_\_ **Job No:** 0237747  
**Project:** Symphony 4 - VP **Well ID:** V5-MW07  
**Location:** V5 **Total Depth (m):** 9.091

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
<b>Sampler:</b>	Rebecca Pitt	JD	<b>Before</b>	<b>SWL (m):</b>	5.534	5.543
<b>Date:</b>	19/03/14	20/3/14		<b>Time:</b>	09:10	08:15
<b>Well Atmosphere (ppm):</b>	—	—	<b>After</b>	<b>SWL (m):</b>	8.375	8.984
<b>Method:</b>	Monsoon	Monsoon		<b>Time:</b>	11:00	08:58
<b>Total Volume Removed (L):</b>	30	20	<b>Depth to Product (m):</b> —			
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> Start: 9.091 End: 9.091   9.093   9.097						

**Comments (Before and After Developing):** No silt present on IP when first gauged. NO.

**Appearance and Odours:** Red/brown colour, no odour, becoming clear at 21L cloudy/clear 21-30L.

**Other:** 1 well volume = 6.97L

**Downtime:** 09:30-10:20 Electrical issues with vehicle, had to arrange for 2<sup>nd</sup> car.

**WELL PURGING:** 20.3.14 - water cloudy/clear. No odour. No colour.

<b>Sampler:</b>		<b>Before</b>	<b>SWL (m):</b>	
<b>Date:</b>			<b>Time:</b>	
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>		<b>Depth to Product (m):</b>		

**WELL PURGING – FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>																			
<b>Time:</b>																			
<b>Temp:</b>																			
<b>DO (% or ppm):</b>																			
<b>EC (µS or mS):</b>																			
<b>pH:</b>																			
<b>Eh (mV):</b>																			

**Comments:**  
**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (µS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**

Field Filtration Performed

**Notes:** 1. SWL – Standing water level (m)  
 2. SWL measured from the top of the casing, highest point  
 3. For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:** \_\_\_\_\_  
**Date:** \_\_\_\_\_





## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237107</i>
Project: <i>Symphony M</i>	Well ID: <i>VJ-MN09</i>
Location: <i>Vale Point</i>	Total Depth (m): <i>6.740</i>

**WELL FINISH:**  
 Monument      PVC Stand Pipe      Gatic Cover      Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2	Before	SWL (m):	Stage 1	Stage 2
Sampler:	/	<i>GP</i>			/	<i>5.718</i>
Date:	/	<i>26/3/14</i>		Time:	/	<i>1555</i>
Well Atmosphere (ppm):	/	/	After	SWL (m):	/	<i>6.220</i>
Method:	/	<i>Submersible/bailer</i>		Time:	/	<i>1700</i>
Total Volume Removed (L):	/	<i>17L</i>		Depth to Product (m):	/	<i>NA</i>

**Total Depth to Bottom of Well - Before & After Development (m):**

**Comments (Before and After Developing):** *bottom is not silty, slow recharge, becoming less silty*

**Appearance and Odours:** *Turbid, brown, no odour*

**Other:** *bailed dry continuously over 60mins, pumped dry initially*

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):			Depth to Product (m):

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1 SWL - Standing water level (m)</li> <li>2 SWL measured from the top of the casing, highest point</li> <li>3 For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<p><b>Checked By:</b></p> <p><b>Date:</b></p>
---	---





## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4 - VP</i>	Well ID: <i>V5-MW09</i>
Location: <i>V5</i>	Total Depth (m): <i>6.735</i>

WELL FINISH:  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

WELL DEVELOPMENT:

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>	<i>Rebecca Pitt</i>	Before	SWL (m): <i>5.670</i>	<i>5.730</i>
Date:	<i>20/03/14</i>	<i>21/03/14</i>		Time: <i>13:35</i>	<i>08:05</i>
Well Atmosphere (ppm):	_____	_____	After	SWL (m): <i>6.010</i>	<i>6.575</i>
Method:	<i>Monsoon</i>	<i>Bailer</i>		Time: <i>14:20</i>	<i>08:55</i>
Total Volume Removed (L):	<i>0</i>	<i>2.34</i>	Depth to Product (m):	_____	_____
Total Depth to Bottom of Well - Before & After Development (m):				Start: <i>6.470</i> End: <i>6.470</i>	<i>6.735</i>

\* Comments (Before and After Developing): *IP returned approx 10cm of thick light brown sediment on 1<sup>st</sup> gauge.*  
 Appearance and Odours: *Sediment too thick + water column too shallow for monsoon, cleaned*  
 Other: *1 well volume = 1.6L pump + tried several attempts, no water was*  
*\* See over page for 21/03/14. purged.*

WELL PURGING:

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

WELL PURGING - FIELD PARAMETER DATA

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (αS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

WELL SAMPLING:

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------







# GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: SYMPHONY	Well ID: VK-mw01
Location: VK	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	JD		Before	SWL (m): 3.934	
Date:	20.3.14			Time: 1500	
Well Atmosphere (ppm):			After	SWL (m): 5.883	
Method:	monsoon			Time: 1630	
Total Volume Removed (L):	75L		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): 7.918 / 8.090					

**Comments (Before and After Developing):**  
 Appearance and Odours: water very turbid/orange. water became white/cloudy  
 Other: towards end of development. No odour.  
 $3.984 + 1.96 = 7.80$

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**  Field Filtration Performed

<b>Notes:</b> 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b> Date:
---	-----------------------------

# GROUNDWATER MONITORING REPORT

Client:				Job No: 0237747							
Project: SYMPHONY				Well ID: VK_mwo2							
Location: VK				Total Depth (m):							
WELL FINISH:											
<input type="checkbox"/> Monument		<input type="checkbox"/> PVC Stand Pipe		<input checked="" type="checkbox"/> Gatic Cover		<input type="checkbox"/> Other:					
WELL DEVELOPMENT:											
	Stage 1		Stage 2			Stage 1		Stage 2			
Sampler:	SD		SD		Before	SWL (m):	3.792		3.767		
Date:	19.3.14		20.3.14			Time:	1310		1315		
Well Atmosphere (ppm):					After	SWL (m):	5.224		4.38		
Method:	monsoon		monsoon			Time:	1426		1430		
Total Volume Removed (L):	10L		<del>15L</del> 20L		Depth to Product (m):						
Total Depth to Bottom of Well - Before & After Development (m):						6.08m		6.03		6.04	
Comments (Before and After Developing): very turbid. Water clears to 'cloudy' by											
Appearance and Odours: around 8L.											
Other: 20.3.14 - water cloudy/milky.											
$(6.08 - 3.792) \times 1.96 = 4.48$ .											
WELL PURGING:											
Sampler:				Before		SWL (m):					
Date:						Time:					
Well Atmosphere (ppm):				After		SWL (m):					
Method:						Time:					
Total Volume Removed (L):						Depth to Product (m):					
WELL PURGING - FIELD PARAMETER DATA											
Vol. Removed (L):											
Time:											
Temp:											
DO (% or ppm):											
EC (µS or mS):											
pH:											
Eh (mV):											
Comments:											
Appearance and Odours:											
Other:											
WELL SAMPLING:											
Sampler:				Temp. :							
Date:				DO (% or ppm):							
Method:				EC (µS or mS):							
Before SWL (m):				pH:							
Time:				Eh (mV):							
Comments:											
Appearance and Odours:											
Other:											
Containers Used:											
<input type="checkbox"/> Field Filtration Performed											
Notes: 1. SWL - Standing water level (m)						Checked By:					
2. SWL measured from the top of the casing, highest point						Date:					
3. For calibration records, refer to 'Field Equipment Calibration Record'											

# GROUNDWATER MONITORING REPORT

Client:				Job No: 0237747			
Project: SYMPHONY				Well ID: VK MW03			
Location: VK				Total Depth (m):			
<b>WELL FINISH:</b> <input type="checkbox"/> Monument <input type="checkbox"/> PVC Stand Pipe <input checked="" type="checkbox"/> Gatic Cover <input type="checkbox"/> Other:							
<b>WELL DEVELOPMENT:</b>							
	Stage 1	Stage 2		Stage 1	Stage 2		
<b>Sampler:</b>	JD.	JD	Before	SWL (m):	3.765	3.790.	
<b>Date:</b>	19.3.11	20.3.14		Time:	1445	1040.	
<b>Well Atmosphere (ppm):</b>			After	SWL (m):	5.549	5.440.	
<b>Method:</b>	monsoon	monsoon.		Time:	1625	1300	
<b>Total Volume Removed (L):</b>	10L	13L.	<b>Depth to Product (m):</b>				
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> 6.05m / 6.08m      6.05							
<b>Comments (Before and After Developing):</b> water orange / very turbid at beginning of development							
<b>Appearance and Odours:</b> water clearing to cloudy w/in .5L. v. Slow recharge.							
<b>Other:</b> 20.3.14 - water murky clear - only slightly cloudy. 2.285 x 1.96 = 4.4786.							
<b>WELL PURGING:</b>							
<b>Sampler:</b>			Before	SWL (m):			
<b>Date:</b>				Time:			
<b>Well Atmosphere (ppm):</b>			After	SWL (m):			
<b>Method:</b>				Time:			
<b>Total Volume Removed (L):</b>			<b>Depth to Product (m):</b>				
<b>WELL PURGING - FIELD PARAMETER DATA</b>							
<b>Vol. Removed (L):</b>							
<b>Time:</b>							
<b>Temp:</b>							
<b>DO (% or ppm):</b>							
<b>EC (µS or mS):</b>							
<b>pH:</b>							
<b>Eh (mV):</b>							
<b>Comments:</b>							
<b>Appearance and Odours:</b>							
<b>Other:</b>							
<b>WELL SAMPLING:</b>							
<b>Sampler:</b>		<b>Temp. :</b>					
<b>Date:</b>		<b>DO (% or ppm):</b>					
<b>Method:</b>		<b>EC (µS or mS):</b>					
<b>Before SWL (m):</b>		<b>pH:</b>					
<b>Time:</b>		<b>Eh (mV):</b>					
<b>Comments:</b>							
<b>Appearance and Odours:</b>							
<b>Other:</b>							
<b>Containers Used:</b>							
<input type="checkbox"/> Field Filtration Performed							
<b>Notes:</b> 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'				<b>Checked By:</b>			
				<b>Date:</b>			

## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4-VP</i>	Well ID: <del>VK</del> VK-MW04
Location: <del>VK</del> VK	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>4.095</i>	
Date:	<i>20/03/14</i>			Time: <i>15:45</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>5.41</i>	
Method:	<i>Monsoon</i>			Time: <i>16:55</i>	
Total Volume Removed (L):	<i>33</i>			Depth to Product (m):	
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 6.125 End:</i>					

Comments (Before and After Developing): *IP returned clean when 1<sup>st</sup> gauged.*  
 Appearance and Odours: *Red/brown colour, no odour, cloudy/clearing @ 20L, clear @ 25L.*  
 Other: *1 well volume = 39L*  
*1<sup>st</sup> purge = 12L, wait 10min, 2<sup>nd</sup> purge = 6L, wait 10min, 6L, wait 10min,*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (αS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used: \_\_\_\_\_  Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VK_MW05</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Brooks</u>		Before	SWL (m): <u>5.138</u>	
Date:	<u>26/3/14</u>			Time: <u>12:55</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>13:50</u>	
Total Volume Removed (L): <u>46L</u>			Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>7.950</u>	

**Comments (Before and After Developing):**  
 Appearance and Odours: Turbid, orange/brown, no odour. Becoming less turbid from  
 Other: ~18L. Purged & dry.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VK_MW06</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Prookes</u>		Before	SWL (m): <u>4.280</u>	
Date:	<u>26/3/14</u>			Time: <u>11:10</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>11:55</u>	
Total Volume Removed (L):	<u>32L</u>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>6.900</u>	
Comments (Before and After Developing): <u>Turbid, orange. No sebour.</u>					
Appearance and Odours:					
Other: <u>Purged. Dry.</u>					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			
<input type="checkbox"/> Field Filtration Performed			

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0737747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VIC_MW07</u>
Location: <u>Vales Pond</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Brookes</u>		Before	SWL (m): <u>4.247</u>	
Date:	<u>26/3/14</u>			Time: <u>10:20</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>11:00</u>	
Total Volume Removed (L):	<u>18L</u>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>6.336</u>	

**Comments (Before and After Developing):**  
 Appearance and Odours: Turbid, orange/brown, no odours. Becoming less  
 Other: turbid at around 9L, Dry.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used: \_\_\_\_\_  Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VL-MW01</b>
Location: <b>VALES POINT</b>	Total Depth (m): <b>6.667</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>K. MUEAN</b>	<del>                    </del>	Before	SWL (m): <b>3.594</b>	<del>                    </del>
Date:	<b>28/3/14</b>	<del>                    </del>		Time: <b>08:17</b>	<del>                    </del>
Well Atmosphere (ppm):		<del>                    </del>	After	SWL (m): <b>5.216</b>	<del>                    </del>
Method:	<b>Submersible</b>	<del>                    </del>		Time: <b>11:50</b>	<del>                    </del>
Total Volume Removed (L): <b>20+10+10</b>		<del>                    </del>		Depth to Product (m): <b>                    </b>	<del>                    </del>
Total Depth to Bottom of Well - Before & After Development (m): <b>6.667 / 6.667</b>					

Comments (Before and After Developing): **Purging dry.**  
 Appearance and Odours: **Silty bottom, light brown/orange, Water change to cloudy.**  
 Other: **Water had cleared.**  
**Well Volume = 6.023 / 1ST Purge = 12-13 Litres - Total removed = 40**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------

Note moved on to VL MW02, 3.  
Left to recharge.



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VL-MW02</b>
Location: <b>VALES POINT</b>	Total Depth (m): <b>7.839</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLean		Before	SWL (m): <b>3.342</b>	
Date:	28/3/14			Time: <b>09:30</b>	
Well Atmosphere (ppm):	—		After	SWL (m): <b>6.642</b>	
Method:	Submersible			Time: <b>11:25</b>	
Total Volume Removed (L):	60L		Depth to Product (m):	—	—
Total Depth to Bottom of Well - Before & After Development (m): <b>7.838 / 7.839</b>					

Comments (Before and After Developing): *pump died required replacement.*  
 Appearance and Odours: *light brown / orange clay, water cleared to cloudy, no odour*  
 Other:  
*Well Vol = 8.812. - Well purging dry but recharging relatively quickly*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (µS or mS):									
pH:									
Eh (mV):									
Comments:									
Appearance and Odours:									
Other:									

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------

## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>NL-MW03</b>
Location: <b>VALES POINT.</b>	Total Depth (m): <b>6.609</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	K. Millean		Before	SWL (m): <b>6.366</b>	
<b>Date:</b>	28/3/14			Time: <b>08:59.</b>	
<b>Well Atmosphere (ppm):</b>	—		After	SWL (m): <b>6.535</b>	
<b>Method:</b>	Submersible			Time: <b>09:25.</b>	
<b>Total Volume Removed (L):</b>	0.3			Depth to Product (m): <b>—</b>	—
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> <b>6.609 / 6.609</b>					

**Comments (Before and After Developing):**  
**Appearance and Odours:** *water was cloudy, some silt but not much. Unable to*  
**Other:** *develop with submersible, switch to bailer, taking too long.*  
*Well Vol = 0.243 x 1.96 = 0.47628.*

**WELL PURGING:**

<b>Sampler:</b>		Before	SWL (m):	
<b>Date:</b>			Time:	
<b>Well Atmosphere (ppm):</b>		After	SWL (m):	
<b>Method:</b>			Time:	
<b>Total Volume Removed (L):</b>			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>																			
<b>Time:</b>																			
<b>Temp:</b>																			
<b>DO (% or ppm):</b>																			
<b>EC (µS or mS):</b>																			
<b>pH:</b>																			
<b>Eh (mV):</b>																			
<b>Comments:</b>																			
<b>Appearance and Odours:</b>																			
<b>Other:</b>																			

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (µS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	
<b>Comments:</b>			
<b>Appearance and Odours:</b>			
<b>Other:</b>			
<b>Containers Used:</b>			

Field Filtration Performed

<b>Notes:</b>	<b>Checked By:</b>
1 SWL – Standing water level (m)	
2 SWL measured from the top of the casing, highest point	
3 For calibration records, refer to 'Field Equipment Calibration Record'	<b>Date:</b>



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony IV</i>	Well ID: VM-MW04
Location: <i>Chloride Plant - VM AEC</i>	Total Depth (m): 4.02

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>S. Brookes</i>		Before	SWL (m): <i>1.910</i>	
Date:	<i>28.3.14</i>			Time: <i>08:05</i>	
Well Atmosphere (ppm):	<i>N/A</i>		After	SWL (m): <i>4.0</i>	
Method:	<i>MONSOON</i>			Time: <i>0825</i>	
Total Volume Removed (L):	<i>~15L</i>		Depth to Product (m):	<i>-</i>	

Total Depth to Bottom of Well - Before & After Development (m): *4.02m / 4.02m bto c*

Comments (Before and After Developing): *cloudy brown, fuming slightly cloudy @ 15%*

Appearance and Odours: *(see above). No odours detected.*

Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VM-MW01</i>
Location: <i>Delta Electricity</i>	Total Depth (m): <i>6.152</i>

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <i>Chris Maskus</i>			Before	SWL (m): <i>3.289</i>	<i>3.109</i>
Date: <i>21/3/14</i>				Time: <i>0945</i>	<i>10.19</i>
Well Atmosphere (ppm):			After	SWL (m): <i>4.421</i>	<i>5.892</i>
Method:				Time: <i>1000</i>	
Total Volume Removed (L): <i>13L</i>			Depth to Product (m):	<i>-</i>	

Total Depth to Bottom of Well - Before & After Development (m): *6.152*  
 Comments (Before and After Developing): *Purged after n10L (~1.5 w.v.s, left to recharge)*  
 Appearance and Odours: *slightly turbid no odour*  
 Other: *@1350 well purged again after recharge, total purged ~7L*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (αS or mS):									
pH:									
Eh (mV):									
Comments:	<i>N/A</i>								
Appearance and Odours:									
Other:									

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:	<i>N/A</i>		
Appearance and Odours:			
Other:			

Containers Used: \_\_\_\_\_  Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____
	Date: _____



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Precast</i>	Job No: <i>023747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VM-MW03</i>
Location: <i>Delta Electricity - Vales Point P.S.</i>	Total Depth (m): <i>4.403</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler: <i>Chris Mathus</i>			Before	SWL (m):	<i>2.200</i>	
Date: <i>21/3/14</i>				Time:	<i>10.45</i>	
Well Atmosphere (ppm): <i>-</i>			After	SWL (m):	<i>DL4</i>	
Method: <i>Monsoon Pump</i>				Time:	<i>-</i>	
Total Volume Removed (L): <i>44L</i>			Depth to Product (m):		<i>-</i>	
Total Depth to Bottom of Well - Before & After Development (m):						

**Comments (Before and After Developing):**  
**Appearance and Odours:** *Silty to odour*  
**Other:** *Well too silty for Monsoon pump, bailer used.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**  
**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**  Field Filtration Performed

<b>Notes:</b> <ol style="list-style-type: none"> <li>1 SWL - Standing water level (m)</li> <li>2 SWL measured from the top of the casing, highest point</li> <li>3 For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<b>Checked By:</b>  <b>Date:</b>
--	--



## GROUNDWATER MONITORING REPORT

Client: <u>DELTA ELECTRICITY</u>	Job No: <u>VN-237747</u>
Project: <u>S. LORRANT</u>	Well ID: <u>MW1</u>
Location: <u>Maadale-09</u>	Total Depth (m): <u>7.930</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>S. N. THALAPATI</u>		Before	SWL (m): <u>4.110</u>	
Date:	<u>9.3.14</u>			Time: <u>11.33</u>	
Well Atmosphere (ppm):	<u>-</u>		After	SWL (m): <u>6.935</u>	
Method:	<u>MONSOON</u>			Time: <u>12.43</u>	
Total Volume Removed (L):	<u>60 L</u>		Depth to Product (m):	<u>-</u>	
Total Depth to Bottom of Well - Before & After Development (m): <u>Before: 5.112m stuck to bottom of</u>					
Comments (Before and After Developing): <u>the Probe @ initial gauge: dark orange - no odour.</u>					
Appearance and Odours: <u>Slightly cloudy @ the end of 60L.</u>					
Other: <u>Total depth of well before: 7.930m after: 7.928</u>					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL - Standing water level (m)  
 2. SWL measured from the top of the casing, highest point  
 3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By: \_\_\_\_\_  
 Date: \_\_\_\_\_





## GROUNDWATER MONITORING REPORT

Client: <u>DELTA</u>	Job No: <u>227747</u>
Project: <u>SUMPPOINT</u>	Well ID: <u>VN-mw3</u>
Location: <u>RAIL UNLOAD</u>	Total Depth (m):

**WELL FINISH:**

Monument
  PVC Stand Pipe
  Gatic Cover
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>S. NUTHALAPATI</u>		Before	SWL (m): <u>9.215</u>	<u>9.090</u>
Date:	<u>19.3.14</u>	<u>20.3.14</u>		Time: <u>14:26</u>	<u>08:05</u>
Well Atmosphere (ppm):	-	-	After	SWL (m): <u>12.765</u>	<u>13.200</u>
Method:	<u>MONSOON</u>	<u>MONSOON</u>		Time: <u>14:30</u>	<u>8:40</u>
Total Volume Removed (L):	<u>25L</u>	<u>20L</u>	Depth to Product (m):	-	<u>14.690</u>
Total Depth to Bottom of Well - Before & After Development (m):				<u>14.610 &amp; 14.670</u>	<u>14.675 - 19.3.14</u>

**Comments (Before and After Developing):** TP Probe is clean after first dipping. Slightly turbid with slight green. No odour. Slow recovery. To be continued on 20.3.14. No site stick to probe @ initial jacking on 20.3.14. 20L drawn around 40 min time. Slightly cloudy.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

**Comments:**  
**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------



f. 205  
14.26x

18/3/14

**GROUNDWATER MONITORING REPORT**

<b>Client:</b>	<b>Job No:</b>
<b>Project:</b>	<b>Well ID:</b> VN-MWS
<b>Location:</b>	<b>Total Depth (m):</b> 7.853

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	S.N		<b>Before</b>	<b>SWL (m):</b> 3.224	
<b>Date:</b>	18.3.14			<b>Time:</b> 11:20	
<b>Well Atmosphere (ppm):</b>	-		<b>After</b>	<b>SWL (m):</b> 5.540	
<b>Method:</b>	mono			<b>Time:</b> 12:30	
<b>Total Volume Removed (L):</b>	110.0L		<b>Depth to Product (m):</b>		
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> 7.853 & 8.845					

**Comments (Before and After Developing):**

**Appearance and Odours:** no odour + dark orange  
**Other:**

**WELL PURGING:**

<b>Sampler:</b>		<b>Before</b>	<b>SWL (m):</b>
<b>Date:</b>			<b>Time:</b>
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>
<b>Method:</b>			<b>Time:</b>
<b>Total Volume Removed (L):</b>		<b>Depth to Product (m):</b>	

**WELL PURGING - FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>																			
<b>Time:</b>																			
<b>Temp:</b>																			
<b>DO (% or ppm):</b>																			
<b>EC (µS or mS):</b>																			
<b>pH:</b>																			
<b>Eh (mV):</b>																			

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (µS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>SWL - Standing water level (m)</li> <li>SWL measured from the top of the casing, highest point</li> <li>For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<p><b>Checked By:</b></p> <p><b>Date:</b></p>
---	---





## GROUNDWATER MONITORING REPORT

Client: <u>DELTA</u>	Job No: <u>237747</u>
Project: <u>SYLPHANT</u>	Well ID: <u>VN-MW6</u>
Location: <u>RAIL UNLOADER</u>	Total Depth (m): <u>12.160</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>S. NUTHAL APATI</u>		Before	SWL (m): <u>7.135</u>	<u>7.230</u>
Date:	<u>18.3.14</u>	<u>19.3.14</u>		Time: <u>13:58</u>	<u>10:10</u>
Well Atmosphere (ppm):	<u>-</u>	<u>-</u>	After	SWL (m): <u>10.640</u>	<u>10.960</u>
Method:	<u>MONSOON</u>	<u>MONSOON</u>		Time: <u>2:15 PM</u>	<u>11:05</u>
Total Volume Removed (L):	<u>25L</u>	<u>27L</u>	Depth to Product (m):	<u>12.26</u>	<u>12.260</u>
Total Depth to Bottom of Well - Before & After Development (m): <u>12.264 + 12.265</u>					

Comments (Before and After Developing): Silt clay stick to IP Probe @ first dipping. Clean IP Probe @ second dipping. Same as on 19.3.14. Light greyish yellow. NO odour. 25L on 18.3.14 & on 19.3.14. Slightly turbid @ the end of 19.3.14 development of well.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------

18/3/14

**GROUNDWATER MONITORING REPORT**

Client: <u>DELTA</u>	Job No: <u>237747</u>
Project: <u>SYMPHONY</u>	Well ID: <u>VN-MW07</u>
Location: <u>RAIL UNLOADER</u>	Total Depth (m): <u>11.762</u>

WELL FINISH:  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	Rebecca Pitt	S. NUTHALATHI	Before	SWL (m): 7.103	2.497
Date:	18/03/14	19-3-14		Time: 14:00	8:56
Well Atmosphere (ppm):		-	After	SWL (m): 9.990	10.410
Method:	Monsoon	MON SOON		Time: 15:05	10:00
Total Volume Removed (L):	~21	20L	Depth to Product (m):		11.765-DTB
Total Depth to Bottom of Well - Before & After Development (m):				Start: 11.725	End: 11.800

Comments (Before and After Developing): *Very thick volume of silt on 1P. after 1st gauge.*  
 Appearance and Odours: *Brown, silty, no odour, slow to recharge.*  
 Other: *1 well volume = 9L. 19.3.14: 1 well vol. = 8-DL SILT, MINDS CLAY. Take completed on 19/03/14 slightly turbid, light greenish-yellow, no odour.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (αS or mS):																				
pH:																				
Eh (mV):																				

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------



## GROUNDWATER MONITORING REPORT

Client:	Job No:
Project:	Well ID: <i>VN-MW08</i>
Location: <i>Vales Point - Coal Unloader</i>	Total Depth (m): <i>7.065</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>3.385</i>	
Date:	<i>18/03/14</i>			Time: <i>09:15</i>	
Well Atmosphere (ppm):	_____		After	SWL (m): <i>4.790</i>	
Method:	<i>Monsoon</i>			Time: <i>10:20</i>	
Total Volume Removed (L):	<i>80</i>		Depth to Product (m): _____		
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 7.060    End: 7.065</i>					

**Comments (Before and After Developing):**  
 Appearance and Odours: *Brown silty, no odour, becoming clear/cloudy at 30L. Clear at 80L*  
 Other: *1 well volume = 7.2 L*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

<b>Notes:</b> <ol style="list-style-type: none"> <li>SWL - Standing water level (m)</li> <li>SWL measured from the top of the casing, highest point</li> <li>For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<b>Checked By:</b> _____ <b>Date:</b> _____
--	--



## GROUNDWATER MONITORING REPORT

<b>Client:</b>	<b>Job No:</b>
<b>Project:</b> <i>Sydney</i>	<b>Well ID:</b> <i>W1-MW09</i>
<b>Location:</b> <i>Railw/oaded</i>	<b>Total Depth (m):</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	<i>S.W</i>		<b>Before</b>	<b>SWL (m):</b> <i>4.345</i>	
<b>Date:</b>	<i>18.3.14</i>			<b>Time:</b> <i>09:10</i>	
<b>Well Atmosphere (ppm):</b>	<i>-</i>		<b>After</b>	<b>SWL (m):</b> <i>5.610</i>	
<b>Method:</b>	<i>mono pump</i>			<b>Time:</b> <i>10:19</i>	
<b>Total Volume Removed (L):</b>	<i>7600L 600L</i>			<b>Depth to Product (m):</b> <i>-</i>	
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> <i>8.590 &amp; 8.910</i>					
<b>Comments (Before and After Developing):</b> <i>Dodic Orange in colour. Silt water.</i>					
<b>Appearance and Odours:</b> <i>No odours.</i>					
<b>Other:</b>					

**WELL PURGING:**

<b>Sampler:</b>		<b>Before</b>	<b>SWL (m):</b>	
<b>Date:</b>			<b>Time:</b>	
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>			<b>Depth to Product (m):</b>	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp. :</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (αS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

<b>Notes:</b>	<b>Checked By:</b>
1. SWL – Standing water level (m)	
2. SWL measured from the top of the casing, highest point	
3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Date:</b>





## GROUNDWATER MONITORING REPORT

Client: <u>DELTA</u>	Job No: <u>937747</u>
Project: <u>SYMPHONY</u>	Well ID: <u>VN-MU210</u>
Location: <u>RAIL UNLOADER</u>	Total Depth (m): <u>14.275</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>S-NUTHALAKI</u>		Before	SWL (m): <u>6.905</u>	
Date:	<u>20.3.14</u>			Time: <u>8:50</u>	
Well Atmosphere (ppm):	<u>RS-N -</u>		After	SWL (m): <u>13.480</u>	
Method:	<u>MONSOON</u>			Time: <u>10:20</u>	
Total Volume Removed (L): <u>25L</u>			Depth to Product (m):	<u>-</u>	
Total Depth to Bottom of Well - Before & After Development (m): <u>14.265 &amp; 14.275</u>					

Comments (Before and After Developing): One well volume: 14L. Initial dipping indicates no Appearance and Odours: silt at the bottom of the well. Very slow recovery. Turbid @ the Other: end of developing the well. no odour. light greenish silt.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------

## GROUNDWATER MONITORING REPORT

Client:	Job No:
Project:	Well ID: <i>VN-MW12</i>
Location:	Total Depth (m): <i>5.735</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>2.900</i>	
Date:	<i>18/03/14</i>			Time: <i>11:25</i>	
Well Atmosphere (ppm):	<i>—————</i>		After	SWL (m): <i>4.550</i>	
Method:	<i>Monsoon -</i>			Time: <i>13:00</i>	
Total Volume Removed (L):	<i>~ 25</i>		Depth to Product (m): <i>—————</i>		
Total Depth to Bottom of Well - Before & After Development (m):				<i>Start: 5.545</i>	<i>End: 5.735</i>

**Comments (Before and After Developing):**  
**Appearance and Odours:** *Brown silty clearing at 20L, continued to purge dry.*  
**Other:** *1 well volume = 5.2L, very slow recharge.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**  
**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**  Field Filtration Performed

<b>Notes:</b> <ol style="list-style-type: none"> <li>1. SWL – Standing water level (m)</li> <li>2. SWL measured from the top of the casing, highest point</li> <li>3. For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<b>Checked By:</b> <b>Date:</b>
---	------------------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VO-mw01</b>
Location: <b>VALES POINT - ASH DAM</b>	Total Depth (m): <b>4.725</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. MCLEAN	<del>                    </del>	Before	SWL (m): <b>1.181</b>	
Date:	<b>26/3/14</b>	<del>                    </del>		Time: <b>10:05</b>	
Well Atmosphere (ppm):	—	<del>                    </del>	After	SWL (m): <b>3.109</b>	
Method:	Submersible	<del>                    </del>		Time: <b>—</b>	
Total Volume Removed (L):	<b>22+12</b>	<del>                    </del>		Depth to Product (m):	
Total Depth to Bottom of Well - Before & After Development (m): <b>4.586 / 4.725</b>					

Comments (Before and After Developing): **Cloudy, Brown to grey, slight Sulphur (Rotten<sup>ss</sup> Odour)**

**Appearance and Odours:**

Other:  
**Well Vol: 6.674      Total removed = 34 Litres**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

**Containers Used:**

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



VO

**GROUNDWATER MONITORING REPORT**

Client:	Job No: 0237747
Project: <i>Symphony 4-VP</i>	Well ID: <i>VO-MW02</i>
Location: <i>VO</i>	Total Depth (m): <i>6.935</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>	/	Before	SWL (m): <i>5.785</i>	/
Date:	<i>21/03/14</i>		Time:	<i>13:10</i>	
Well Atmosphere (ppm):	_____		After	SWL (m): <i>6.250</i>	
Method:	<i>Monsoon</i>		Time:	<i>13:45</i>	
Total Volume Removed (L):	<i>17</i>		Depth to Product (m):	_____	
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 6.930 End: 6.935</i>					

Comments (Before and After Developing): *IP returned clean after 1<sup>st</sup> gauge. part of water*  
 Appearance and Odours: *Brown sediments at bottom of water column, upper column clear,*  
 Other: *1 well volume = 2.2L no odour, clear @ 14L.*  
*1<sup>st</sup> purge = 10L, wait 10min, 2<sup>nd</sup> purge = 7L complete.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:

Field Filtration Performed

Notes:	Checked By:
1. SWL – Standing water level (m)	
2. SWL measured from the top of the casing, highest point	
3. For calibration records, refer to 'Field Equipment Calibration Record'	Date:



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony 4 - VP</i>	Well ID: <i>VO-MW03</i>
Location: <i>VO</i>	Total Depth (m): <i>7.790</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>Rebecca Pitt</i>		Before	SWL (m): <i>4.500</i>	
Date:	<i>21/03/14</i>			Time: <i>14:00</i>	
Well Atmosphere (ppm):	_____		After	SWL (m): <i>6.990</i>	
Method:	<i>Monsoon</i>			Time: <i>14:30</i>	
Total Volume Removed (L):	<i>15.5</i>		Depth to Product (m): _____		

Total Depth to Bottom of Well - Before & After Development (m): *Start: 7.790 End: 7.790*

Comments (Before and After Developing): *IP returned clean after 1<sup>st</sup> gauge.*

Appearance and Odours: *No odour brown silty water at base of column, clearing @10L.*

Other: *1 well volume = 6.5L*

*1<sup>st</sup> purge = 12L, wait 10 min, 2<sup>nd</sup> purge = 3.5L.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:





## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0257743.</b>
Project: <b>SYMPHONY IV</b>	Well ID: <b>Vo.MW04</b>
Location: <b>ASH DAM</b>	Total Depth (m): <b>8.754</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>K. McLEANS</b>		Before	SWL (m): <b>1.503</b>	
Date:	<b>18/3/14</b>			Time: <b>08:15</b>	
Well Atmosphere (ppm):	<b>—</b>		After	SWL (m): <b>1.818</b>	
Method:	<b>Submersible</b>			Time: <b>09:45</b>	
Total Volume Removed (L):	<b>160 L</b>		Depth to Product (m): <b>—</b>		

Total Depth to Bottom of Well - Before & After Development (m): **Before: 6.794 / After: 8.754**

**Comments (Before and After Developing):**

Appearance and Odours: **Silty (Heavy), brown, no odour, clay, still brown, cloudy to turbid @ completion.**

Other: **Total Vol 6.794 - 1.503 = 5.291 x 1.96 = 10.37036**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				

**Comments:**

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------





17/3/14

**GROUNDWATER MONITORING REPORT**

Client: DELTA	Job No: 0237743
Project: SYMPHONY IV	Well ID: MW05
Location: Vales Point	Total Depth (m): 10.510
WELL FINISH: <input checked="" type="checkbox"/> Monument <input type="checkbox"/> PVC Stand Pipe <input type="checkbox"/> Gatic Cover <input type="checkbox"/> Other: <i>Wdy</i> 10.509	

WELL DEVELOPMENT:					
	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	R. Pitt	K. McLean	Before	SWL (m):	10.00
Date:	17/03/14	18/3/14		Time:	4.201
Well Atmosphere (ppm):	—	—	After	SWL (m):	9.835
Method:	Monsoon	Submersible		Time:	11:35
Total Volume Removed (L):	23	21	Depth to Product (m): —		

Total Depth to Bottom of Well - Before & After Development (m): ~~12.510~~ 10.505 / Before 10.501

Comments (Before and After Developing): Development stopped due to low recharge rate

Appearance and Odours: Well going dry Cloudy / turbid - light brown / grey

Other: After 2 attempts 44 Litres were removed - Metallic taste  
 18/3/14 - Well Vol = 12.348 odour present

WELL PURGING:					
Sampler:	Rebecca Pitt	Before	SWL (m):	3.555	
Date:	17/03/14		Time:	12:50	
Well Atmosphere (ppm):		After	SWL (m):		
Method:	Monsoon		Time:		
Total Volume Removed (L):		Depth to Product (m): —			

WELL PURGING – FIELD PARAMETER DATA										
Vol. Removed (L):	10									
Time:	13:05									
Temp:										
DO (% or ppm):										
EC (µS or mS):										
pH:										
Eh (mV):										

Comments:

Appearance and Odours:

Other:  $12.510 - 3.555 = 8.955 \times 1.96 = 17.55 \text{ L}$

WELL SAMPLING:			
Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

<b>Client:</b>	<b>Job No:</b>
<b>Project:</b>	<b>Well ID:</b> MW 6
<b>Location:</b>	<b>Total Depth (m):</b> 3.140
<b>WELL FINISH:</b>	
<input type="checkbox"/> Monument <input checked="" type="checkbox"/> PVC Stand Pipe <input type="checkbox"/> Gatic Cover <input type="checkbox"/> Other:	

DTW: 0.698

WELL DEVELOPMENT:		Stage 1	Stage 2			Stage 1	Stage 2
<b>Sampler:</b>	S-N			<b>Before</b>	<b>SWL (m):</b>	0.698	
<b>Date:</b>	12.11.14				<b>Time:</b>	1:50	
<b>Well Atmosphere (ppm):</b>	-			<b>After</b>	<b>SWL (m):</b>	1.694	
<b>Method:</b>	Pump				<b>Time:</b>	2.40	
<b>Total Volume Removed (L):</b>	40.0L				<b>Depth to Product (m):</b>	-	
<b>Total Depth to Bottom of Well - Before &amp; After Development (m):</b> 3.140 3.140							
<b>Comments (Before and After Developing):</b> cloudy & black develop:ng							
<b>Appearance and Odours:</b> light orange. NO odour							
<b>Other:</b>							

WELL PURGING:		Before	SWL (m):	Time:
<b>Sampler:</b>	S-N		0.698	
<b>Date:</b>	12.11.14			
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>			<b>Depth to Product (m):</b>	

WELL PURGING - FIELD PARAMETER DATA											
<b>Vol. Removed (L):</b>											
<b>Time:</b>											
<b>Temp:</b>											
<b>DO (% or ppm):</b>											
<b>EC (µS or mS):</b>											
<b>pH:</b>											
<b>Eh (mV):</b>											
<b>Comments:</b>											
<b>Appearance and Odours:</b>											
<b>Other:</b>											

WELL SAMPLING:		Temp. :
<b>Sampler:</b>		
<b>Date:</b>		<b>DO (% or ppm):</b>
<b>Method:</b>		<b>EC (µS or mS):</b>
<b>Before SWL (m):</b>		<b>pH:</b>
<b>Time:</b>		<b>Eh (mV):</b>
<b>Comments:</b>		
<b>Appearance and Odours:</b>		
<b>Other:</b>		
<b>Containers Used:</b>		

Field Filtration Performed

<b>Notes:</b>	<b>Checked By:</b>
1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Date:</b>



## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 0737747
Project: SYMPHONY IV	Well ID: NO-MW07
Location: VALES POINT	Total Depth (m): 10.735

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLEAN		Before	SWL (m): 3.673	
Date:	17/3/14			Time: 12:25	
Well Atmosphere (ppm):	-		After	SWL (m): 4.248	
Method:	Submersible			Time: 13:25	
Total Volume Removed (L):	~140L			Depth to Product (m): -	
Total Depth to Bottom of Well - Before & After Development (m): 10.760 / 10.735					

Comments (Before and After Developing):

Appearance and Odours:

Other:

Well Vol = 10.760 - 3.673 = 7.087 x 1.96 = 13.891

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VO-MW08</b>
Location: <b>VALES POINT - ASH DAM.</b>	Total Depth (m): <b>13.291</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

WELL DEVELOPMENT:		Stage 1	Stage 2	Stage 1		Stage 2
Sampler:	<b>K. MCLEAN</b>		<del>X</del>	Before	SWL (m):	<b>11:25</b>
Date:	<b>27/3/14</b>		<del>X</del>		Time:	<b>9:49</b>
Well Atmosphere (ppm):			<del>X</del>	After	SWL (m):	<b>9.493</b>
Method:	<b>Submersible</b>		<del>X</del>		Time:	<b>11:55</b>
Total Volume Removed (L):	<b>73</b>		<del>X</del>	Depth to Product (m):		<b>—</b>
Total Depth to Bottom of Well - Before & After Development (m):				<b>13.291 / 13.291</b>		

**Comments (Before and After Developing):**  
**Appearance and Odours:** *Turbid light brown, no odour, cloudy @ 5L, clear by 20L*  
**Other:**  
*Well Vol = 7.448      Total Removed = 73 Litres.*

**WELL PURGING:**

Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

<b>Notes:</b> 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b>  <b>Date:</b>
---	--

## GROUNDWATER MONITORING REPORT

Client: <u>DELTA</u>	Job No: <u>023 7747</u>
Project: <u>Symphony IV GME</u>	Well ID: <u>VO-mw09</u>
Location: <u>Ash Dam</u>	Total Depth (m): <u>12.588</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>K MUEAN</u>	<u>NA</u>	Before	SWL (m): <u>7.244</u>	
Date:	<u>14/3/14</u>	<u>NA</u>		Time: <u>13:30</u>	
Well Atmosphere (ppm):	<u>-</u>	<u>NA</u>	After	SWL (m): <u>11.024</u>	
Method:	<u>Submersible Pump</u>	<u>NA</u>		Time: <u>14:37</u>	
Total Volume Removed (L):	<u>~ 100</u>		Depth to Product (m):	<u>NA</u>	

Total Depth to Bottom of Well - Before & After Development (m): Before 12.588 / After = 12.588.

Comments (Before and After Developing): Very silty, light brown. Began to clear around

Appearance and Odours: 37.5 Litres

Other: Well volume = 10.47424

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------





## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY IV</b>	Well ID: <b>VO-MW10</b>
Location: <b>VALES POINT - ASH DAM</b>	Total Depth (m): <b>12.694</b> <i>12.694</i>

**WELL FINISH:**
 Monument      PVC Stand Pipe      Gatic Cover      Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>K. MURPHY</i>	<i>K. MURPHY</i>	Before	SWL (m): <i>6.578</i>	<i>6.764</i>
Date:	<i>14/3/14</i>	<i>17/3/14</i>		Time: <i>11:30</i>	<i>14:55</i>
Well Atmosphere (ppm):	<i>-</i>		After	SWL (m): <i>12.394</i>	<i>10.329</i>
Method:	<i>Submersible</i>	<i>Submersible</i>		Time: <i>13:10</i>	<i>16:25</i>
Total Volume Removed (L):	<i>15L</i>	<i>~89 L</i>	Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):			<i>11.786 / 12.694</i>		

Comments (Before and After Developing): *Water slow to recharge, still very silty; development*  
 Appearance and Odours: *Before: Silty bottom (~30cm), grey. Stopped.*  
 Other: *Stage 2 - Well had cleared to cloudy - Total 54 Litres removed.*  
 $11.786 - 6.578 = 5.208 \times 1.96 = 10.20768$  Well volume.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

Appearance and Odours:

Other:

**Containers Used:**
 Field Filtration Performed

- Notes:
- SWL - Standing water level (m)
  - SWL measured from the top of the casing, highest point
  - For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:



13/3/14

**GROUNDWATER MONITORING REPORT**

Client: DELTA Job No: 0237747  
 Project: Symphony 1U GME Well ID: VO-mw11  
 Location: VP ASH DAM - JO Total Depth (m): 12.693

WELL FINISH:  
 Monument  PVC Stand Pipe  Gatic Cover  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLEND		Before	SWL (m): 8.499	
Date:	13/3/14			Time: 16:02	
Well Atmosphere (ppm):	-		After	SWL (m): 10.924 (rising)	
Method:	Mini Monsoon			Time: 17:15	
Total Volume Removed (L):	~57.5		Depth to Product (m):		

Total Depth to Bottom of Well - Before & After Development (m): Before 12.591 / After 12.693

Comments (Before and After Developing): Before - Silty bottom from ~0.030 (Light Brown)

Appearance and Odours:

Other:  
 $4.092 \times 1.96 = 8.02032$  well volume

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1. SWL - Standing water level (m)  
 2. SWL measured from the top of the casing, highest point  
 3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By: \_\_\_\_\_  
 Date: \_\_\_\_\_



4.092

## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>SYMPHONY IV - VALES POINT.</u>	Well ID: <u>NO-M12</u>
Location: <u>ASH DAM - VALES POINT.</u>	Total Depth (m): <u>3.559</u>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <u>K. MCLEAW</u>	<u>K. MCLEAW</u>		Before	SWL (m): <u>3.571</u>	<u>0.739</u>
Date: <u>13/3/14</u>	<u>13/3/14</u>			Time: <u>10:47</u>	
Well Atmosphere (ppm): <u>-</u>			After	SWL (m): <u>0.836</u>	
Method: <u>Submersible</u>				Time: <u>12:31</u>	
Total Volume Removed (L):			Depth to Product (m):	<u>-</u>	
Total Depth to Bottom of Well - Before & After Development (m):			Before: <u>3.571</u>	After: <u>3.559</u>	

**Comments (Before and After Developing):**  
 Appearance and Odours: Extremely silty at bottom prior to development.  
 Other: Water started to clear around 2l litres. At end of development water 3.571 - 0.739 x 196 = 5.551 Well Volume. was cloudy.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																				
Time:																				
Temp:																				
DO (% or ppm):																				
EC (µS or mS):																				
pH:																				
Eh (mV):																				
Comments:																				
Appearance and Odours:																				
Other:																				

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project:	Well ID: VO-MW13
Location: VO-MW13 - ASH DAM	Total Depth (m): 5.768

WELL FINISH: 5.771

Monument
  PVC Stand Pipe
  Gatic Cover
  Other:

WELL DEVELOPMENT:		Stage 1	Stage 2			Stage 1	Stage 2
Sampler:				Before	SWL (m):	4.234	4.218
Date:	13/3/14				Time:		10.10
Well Atmosphere (ppm):	NA			After	SWL (m):		5.232
Method:	Submersible Pump				Time:		11:15
Total Volume Removed (L):	~2.9-3L	~12 L.t.c		Depth to Product (m):		NA	NA
Total Depth to Bottom of Well - Before & After Development (m):							

Comments (Before and After Developing):

Appearance and Odours: *Water Clear, no odours, slightly cloudy*

Other:  $5.768 - 4.234 = 1.534 \times 1.96 = 3.007$  (Well Volume)

*Well purge dry.  $1.55 \times 1.96 = 3.038$ . - Total removed = ~15 Litres*

WELL PURGING:			
Sampler:		Before	SWL (m):
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):		Depth to Product (m):	

WELL PURGING - FIELD PARAMETER DATA											
Vol. Removed (L):											
Time:											
Temp:											
DO (% or ppm):											
EC (αS or mS):											
pH:											
Eh (mV):											
Comments:											
Appearance and Odours:											
Other:											

WELL SAMPLING:			
Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: <ol style="list-style-type: none"> <li>1. SWL - Standing water level (m)</li> <li>2. SWL measured from the top of the casing, highest point</li> <li>3. For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	Checked By: _____ Date: _____
--	----------------------------------



## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony IV</i>	Well ID: VO-MW14
Location: <i>VO Aphidam</i>	Total Depth (m): 6.08m

**WELL FINISH:**  
 Monument      PVC Stand Pipe      Gatic Cover      Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>P. Brookes</i>		Before	SWL (m): <i>2.54</i>	
Date:	<i>28.3.14</i>			Time: <i>11:20</i>	
Well Atmosphere (ppm):	<i>MA</i>		After	SWL (m):	
Method:	<i>Monsoon</i>			Time:	
Total Volume Removed (L):	<i>30L.</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): <i>6.08m. / 6.08m.</i>					

**Comments (Before and After Developing):**  
 Appearance and Odours: *Turbid, yellow-orange, no odours.*  
 Other: *Purged day, waited 5 mins, purge again ~ becoming clear.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------

## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony IV</i>	Well ID: <i>VO-MW15</i>
Location: <i>VO Akdam</i>	Total Depth (m): <i>6.08m.</i>

**WELL FINISH:**  
 Monument      PVC Stand Pipe      Gatic Cover      Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>S Brooks</i>		Before	SWL (m): <i>1.425</i>	
Date:	<i>28.3.14</i>			Time: <i>10:57</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>6.00m.</i>	
Method:	<i>Monsoon</i>			Time: <i>11:15</i>	
Total Volume Removed (L):	<i>-25L</i>		Depth to Product (m):	<i>-</i>	
Total Depth to Bottom of Well - Before & After Development (m):			<i>6.08m.</i>	<i>6.08m.</i>	

**Comments (Before and After Developing):**  
 Appearance and Odours: *Cloudy orange-brown, becoming clear from*  
 Other: *Purged dry @ 25L.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------

## GROUNDWATER MONITORING REPORT

Client:				Job No:			
Project:				Well ID: <i>MW16</i>			
Location: <i>Vales Point</i>				Total Depth (m): <i>10.225</i>			
WELL FINISH:							
<input checked="" type="checkbox"/> Monument <input type="checkbox"/> PVC Stand Pipe <input type="checkbox"/> Gatic Cover <input type="checkbox"/> Other:							
WELL DEVELOPMENT:							
	Stage 1	Stage 2		Stage 1	Stage 2		
Sampler:	<i>R.P.A. &amp; S.N.</i>		Before	SWL (m):	<i>4.178</i>		
Date:	<i>17/03/14</i>			Time:	<i>15:10</i>		
Well Atmosphere (ppm):	<i>---</i>		After	SWL (m):	<i>7.710</i>		
Method:	<i>Monsoon</i>			Time:	<i>16:35</i>		
Total Volume Removed (L):	<i>85</i>		Depth to Product (m):		<i>---</i>		
Total Depth to Bottom of Well - Before & After Development (m): <i>Start: 10.120</i>							
Comments (Before and After Developing):							
Appearance and Odours: <i>Yellow/brown <sup>fine</sup> silty clay in bottom of wells, becoming clear at</i>							
Other: <i>30L. No odour.</i>							
WELL PURGING:							
Sampler:			Before	SWL (m):			
Date:				Time:			
Well Atmosphere (ppm):			After	SWL (m):			
Method:				Time:			
Total Volume Removed (L):			Depth to Product (m):				
WELL PURGING – FIELD PARAMETER DATA							
Vol. Removed (L):							
Time:							
Temp:							
DO (% or ppm):							
EC (µS or mS):							
pH:							
Eh (mV):							
Comments:							
Appearance and Odours:							
Other:							
WELL SAMPLING:							
Sampler:			Temp. :				
Date:			DO (% or ppm):				
Method:			EC (µS or mS):				
Before SWL (m):			pH:				
Time:			Eh (mV):				
Comments:							
Appearance and Odours:							
Other:							
Containers Used:							
<input type="checkbox"/> Field Filtration Performed							
Notes: <ol style="list-style-type: none"> <li>1. SWL – Standing water level (m)</li> <li>2. SWL measured from the top of the casing, highest point</li> <li>3. For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>				Checked By:			
				Date:			



## GROUNDWATER MONITORING REPORT

Client:	Job No: <b>0237747</b>
Project: <b>Symphony IV</b>	Well ID: <b>VO-MW17</b>
Location: <b>AEC-VO Ashdam.</b>	Total Depth (m): <b>5.05m.</b>

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>S. Brookes</b>		Before	SWL (m): <b>1.405m</b>	
Date:	<b>28.3.14</b>			Time: <b>9:55</b>	
Well Atmosphere (ppm):	<b>N/A</b>		After	SWL (m): <b>1.800m.</b>	
Method:	<b>Bailer</b>			Time: <b>10:05</b>	
Total Volume Removed (L):	<b>25L.</b>		Depth to Product (m):		

**Total Depth to Bottom of Well - Before & After Development (m):** **Turbid & Brown, quick recharge ~ delta**

**Comments (Before and After Developing):** **immediately adjacent. possibly return to pump when d of**

**Appearance and Odours:** **and when car can access well.**

**Other:** **25L removed, however continued to be turbid brown/grey.**

**DTB 5.05m / 5.05m.**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1 SWL - Standing water level (m)</li> <li>2 SWL measured from the top of the casing, highest point</li> <li>3 For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<p><b>Checked By:</b></p> <p><b>Date:</b></p>
---	---



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237747</b>
Project: <b>SYMPHONY IV</b>	Well ID: <b>V0-MW18</b>
Location: <b>ASH DAM</b>	Total Depth (m): <b>7.776</b>

**WELL FINISH:**

Monument
  PVC Stand Pipe
  Gatic Cover
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<b>K MURPHY</b>		Before	SWL (m): <b>5.879</b>	
Date:	<b>18/3/14</b>			Time: <b>12:05</b>	
Well Atmosphere (ppm):			After	SWL (m): <b>13:50.5</b>	
Method:	<b>Submersible</b>			Time: <b>7.779</b>	
Total Volume Removed (L):	<b>37L</b>			Depth to Product (m):	

Total Depth to Bottom of Well - Before & After Development (m): **Before: 7.772 / After: 7.776**

Comments (Before and After Developing): **Light brown, no odour, Heavily silty foam @ 0.370 mbTD**

**Appearance and Odours:**

**Other:**

**Well Vol = 7.772 - 5.879 = 1.893 x 1.96 = 3.71028.**

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**

**Appearance and Odours:**

**Other:**

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

**Appearance and Odours:**

**Other:**

**Containers Used:**

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:



## GROUNDWATER MONITORING REPORT

Client:	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VO-mw19</i>
Location: <i>AEC-VO Ashdom.</i>	Total Depth (m): <i>5.84m</i>

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>S-Brookes</i>		Before	SWL (m): <i>4.30m</i>	
Date:	<i>28-3-14</i>			Time: <i>9:10</i>	
Well Atmosphere (ppm):	<i>N/A</i>		After	SWL (m): <i>5.20m</i>	
Method:	<i>Bailer</i>			Time: <i>9:36</i>	
Total Volume Removed (L):	<i>~15L.</i>		Depth to Product (m): <i>—</i>		

Total Depth to Bottom of Well - Before & After Development (m): *5.84m / 5.84m.*

Comments (Before and After Developing): *Silty probe (end), highly turbid 1-10L.*

Appearance and Odours: *10-15L, becoming cloudy/orange-brown.*

Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

<p>Notes:</p> <ol style="list-style-type: none"> <li>1 SWL – Standing water level (m)</li> <li>2 SWL measured from the top of the casing, highest point</li> <li>3 For calibration records, refer to 'Field Equipment Calibration Record'</li> </ol>	<p>Checked By:</p> <p>Date:</p>
--	---------------------------------



14/3/14

**GROUNDWATER MONITORING REPORT**

Client: DELTA Job No: 0237787  
 Project: SYMPHONY IV Well ID: NO-M20 MW 26  
 Location: ASH DAM Total Depth (m): 11.722

WELL FINISH:  
 Monument  PVC Stand Pipe  Gatic Cover  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. McLEAN		Before	SWL (m): 6.887	
Date:	14/3/14			Time: 15:20	
Well Atmosphere (ppm):	-		After	SWL (m): 8.342	
Method:	Submersible Pump			Time: 16:45	
Total Volume Removed (L):	91L		Depth to Product (m):	-	-

Total Depth to Bottom of Well - Before & After Development (m): Before 11.719 / After: 11.722

Comments (Before and After Developing): Very silty, light brown, sandy, no odour; Appearance and Odours: starting to clear @ 30 metres.

Other: Total well volume = 9.47072

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:  
 Date:



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237147</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VP-MW01</b>
Location: <b>VACES POINT - ASH DAM</b>	Total Depth (m): <b>9.524</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:** **VP-MW01**

	Stage 1	Stage 2		Stage 1	Stage 2
<b>Sampler:</b>	<b>K. MCEAN</b>	<b>K. MCEAN</b>	<b>Before</b>	<b>SWL (m):</b>	<b>3.741</b> <b>3.738</b>
<b>Date:</b>	<b>26/3/14</b>	<b>27/3/14</b>		<b>Time:</b>	<b>—</b> <b>12:20</b>
<b>Well Atmosphere (ppm):</b>	<b>—</b>	<b>—</b>	<b>After</b>	<b>SWL (m):</b>	<b>8.640</b>
<b>Method:</b>	<b>Submersible</b>	<b>Boiler</b>		<b>Time:</b>	<b>—</b>
<b>Total Volume Removed (L):</b>	<b>15 Litres</b>			<b>Depth to Product (m):</b>	<b>—</b> <b>—</b>

**Total Depth to Bottom of Well - Before & After Development (m):** **9.524 / 9.524**

**Comments (Before and After Developing):** *Very silty bottom, (milky/white/grey) - unable to continue development with pump.*

**Other:**  
*Well Vol = 11.335 / Total Removed = 15 Litres +*

**WELL PURGING:**

<b>Sampler:</b>		<b>Before</b>	<b>SWL (m):</b>	
<b>Date:</b>			<b>Time:</b>	
<b>Well Atmosphere (ppm):</b>		<b>After</b>	<b>SWL (m):</b>	
<b>Method:</b>			<b>Time:</b>	
<b>Total Volume Removed (L):</b>			<b>Depth to Product (m):</b>	

**WELL PURGING - FIELD PARAMETER DATA**

<b>Vol. Removed (L):</b>									
<b>Time:</b>									
<b>Temp:</b>									
<b>DO (% or ppm):</b>									
<b>EC (µS or mS):</b>									
<b>pH:</b>									
<b>Eh (mV):</b>									

**Comments:**  
**Appearance and Odours:**  
**Other:**

**WELL SAMPLING:**

<b>Sampler:</b>		<b>Temp.:</b>	
<b>Date:</b>		<b>DO (% or ppm):</b>	
<b>Method:</b>		<b>EC (µS or mS):</b>	
<b>Before SWL (m):</b>		<b>pH:</b>	
<b>Time:</b>		<b>Eh (mV):</b>	

**Comments:**  
**Appearance and Odours:**  
**Other:**

**Containers Used:**

Field Filtration Performed

**Notes:**

- 1 SWL - Standing water level (m)
- 2 SWL measured from the top of the casing, highest point
- 3 For calibration records, refer to 'Field Equipment Calibration Record'

**Checked By:**  
**Date:**



## GROUNDWATER MONITORING REPORT

Client: <b>DELTA</b>	Job No: <b>0237947</b>
Project: <b>SYMPHONY</b>	Well ID: <b>VRMWO2</b>
Location: <b>VALES POINT</b>	Total Depth (m): <b>7.669</b>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. MCLEAN	K. MCLEAN	Before	SWL (m): <b>2.157</b>	<del>                    </del>
Date:	26/3/14	27/3/14		Time:	<del>                    </del>
Well Atmosphere (ppm):	—	<del>                    </del>	After	SWL (m): <b>6.402</b>	<del>                    </del>
Method:	Submersible	<del>                    </del>		Time:	<del>                    </del>
Total Volume Removed (L):	60	<del>                    </del>		Depth to Product (m):	<del>                    </del>
Total Depth to Bottom of Well - Before & After Development (m):			<b>7.582 / 7.669</b>		

**Comments (Before and After Developing):**  
 Appearance and Odours: *Milky white/grey, silty bottom, no odour. cleared to cloudy*  
 Other:  
 Well Vol =  $5.425 \times 1.96 = 10.633$

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):			Depth to Product (m):	

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
--	----------------------



## GROUNDWATER MONITORING REPORT

Client: <i>NSW NCSWIRG</i>	Job No: <i>0237747</i>
Project:	Well ID: <i>VS-MW01</i>
Location: <i>Delta Electricity Vales Point</i>	Total Depth (m): <i>4.475</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <i>Chris Masters</i>			Before	SWL (m): <i>3.389</i>	
Date: <i>21/3/14</i>				Time: <i>0945</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>4.491</i>	
Method: <i>Monsoon Pump</i>				Time: <i>10-00</i>	
Total Volume Removed (L): <i>10L</i>			Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):			<i>Before - 4.475</i>		<i>After - 4.972</i>

**Comments (Before and After Developing):**  
 Appearance and Odours: *Slightly turbid no odour*  
 Other: *Purged dry after ~7L (2 well vols) left to recharge for 10 mins. @ 1400 → SWL @ 4.160 and another 0.6L purged with water.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):										
Time:										
Temp:										
DO (% or ppm):										
EC (µS or mS):										
pH:										
Eh (mV):										

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:
	Date:



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>				Job No:	
Project: <i>Symphony IV</i>				Well ID: <i>VS-MW02</i>	
Location: <i>Delta Electricity - Vales Point Ps.</i>				Total Depth (m): <i>6.032</i>	
WELL FINISH:					
<input type="checkbox"/> Monument <input type="checkbox"/> PVC Stand Pipe <input checked="" type="checkbox"/> Gatic Cover <input type="checkbox"/> Other:					
WELL DEVELOPMENT:					
	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <i>Chris Masters</i>			Before	SWL (m): <i>4.301</i>	
Date: <i>21/3/14</i>				Time: <i>0920</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>5.412</i>	
Method: <i>Manjoon Pump</i>				Time:	
Total Volume Removed (L): <i>20L + -7.W.V.</i>			Depth to Product (m): <i>-</i>		
Total Depth to Bottom of Well - Before & After Development (m):			<i>Before - 6.032 After - 6.028</i>		
Comments (Before and After Developing): <i>purged dry @ 0930, left to recharge</i>					
Appearance and Odours: <i>No odour, slightly turbid</i>					
Other: <i>Approx 7 well volumes purged. → well developed.</i>					
WELL PURGING:					
Sampler:			Before	SWL (m):	
Date:				Time:	
Well Atmosphere (ppm):			After	SWL (m):	
Method:				Time:	
Total Volume Removed (L):			Depth to Product (m):		
WELL PURGING – FIELD PARAMETER DATA					
Vol. Removed (L):					
Time:					
Temp:					
DO (% or ppm):					
EC (µS or mS):					
pH:					
Eh (mV):					
Comments:					
Appearance and Odours:					
Other:					
WELL SAMPLING:					
Sampler:			Temp. :		
Date:			DO (% or ppm):		
Method:			EC (µS or mS):		
Before SWL (m):			pH:		
Time:			Eh (mV):		
Comments:					
Appearance and Odours:					
Other:					
Containers Used:					
<input type="checkbox"/> Field Filtration Performed					
Notes:			Checked By:		
1. SWL – Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'			Date:		

## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>V5-MW03</i>
Location: <i>Delta Electricity - Vales Point P.S</i>	Total Depth (m): <i>5.211</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler: <i>Chris Masters</i>			Before	SWL (m): <i>2.582</i>	
Date: <i>21/3/14</i>				Time: <i>0846</i>	
Well Atmosphere (ppm): <i>-</i>			After	SWL (m): <i>5.014</i>	
Method: <i>Monsoon</i>				Time:	
Total Volume Removed (L): <i>SOL (10 well volumes)</i>	Depth to Product (m):				
Total Depth to Bottom of Well - Before & After Development (m):				<i>Before 5.211</i>	<i>After 5.201</i>
Comments (Before and After Developing): <i>Well purged dry, left to recharge, development completed</i>					
Appearance and Odours: <i>Turbid → clear as developed.</i>					
Other:					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):	Depth to Product (m):			

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (αS or mS):	<i>N/A</i>								
pH:									
Eh (mV):									

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	<i>N/A</i>
Method:		EC (αS or mS):	<i>N/A</i>
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By: \_\_\_\_\_

Date: \_\_\_\_\_



## GROUNDWATER MONITORING REPORT

Client: <i>NSW Treasury</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VS-MW04</i>
Location: <i>Delta Electricity - Vales Point P.S.</i>	Total Depth (m): <i>5.180</i>

**WELL FINISH:**

Monument     
  PVC Stand Pipe     
  Gatic Cover     
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler: <i>Chris Maskels</i>			Before	SWL (m):	<i>2.888</i>	
Date: <i>2/3/14</i>				Time:	<i>0815</i>	
Well Atmosphere (ppm):			After	SWL (m):	<i>DRY</i>	
Method: <i>Monsoon Pump</i>				Time:	<i>0830</i>	
Total Volume Removed (L):	<i>10L</i>	<i>1L = 11L</i>	Depth to Product (m):			
Total Depth to Bottom of Well - Before & After Development (m):			<i>Before</i>	<i>5.180</i>	<i>After</i>	<i>5.180</i>

**Comments (Before and After Developing):**

Appearance and Odours: *no colour*

Other: *Well purged dry. left to recharge for 5 mins → still no water. @ 1307 → well purged again with only 1L gatted*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (αS or mS):									
pH:									
Eh (mV):									

**Comments:**

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**

Appearance and Odours:

Other:

**Containers Used:**

Field Filtration Performed

- Notes:
1. SWL - Standing water level (m)
  2. SWL measured from the top of the casing, highest point
  3. For calibration records, refer to 'Field Equipment Calibration Record'

Checked By:

Date:



## GROUNDWATER MONITORING REPORT

Client: DELTA	Job No: 023747
Project: SYMPHONY	Well ID: VS-MW05
Location: Vales Point - Substation laydown	Total Depth (m): 5.005

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	K. Mclean	/	Before	SWL (m): 2.500	
Date:	25/3/14		Time: 13:45		
Well Atmosphere (ppm):	—		After	SWL (m): 2.566	
Method:	Submersible		Time: 14:25		
Total Volume Removed (L):	60 L.		Depth to Product (m):	NA	NA
Total Depth to Bottom of Well - Before & After Development (m): 5.006 / 5.006					

**Comments (Before and After Developing):**  
 Appearance and Odours: Dark brown, turbid, slight sulphur like odour. / Cleared to  
 Other: Cloudy.  
 Well Vol = 4.912

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

**Comments:**  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

**Comments:**  
 Appearance and Odours:  
 Other:

**Containers Used:**

Field Filtration Performed

<b>Notes:</b> 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	<b>Checked By:</b>  <b>Date:</b>
---	--





## GROUNDWATER MONITORING REPORT

Client: 27.03.14	Job No: <sup>nr</sup> Symphony
Project: 237747	Well ID: VT-MW03b
Location: Moxgand Hwy Ash	Total Depth (m): 7.050

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	S. NUTHALAPATI		Before	SWL (m): 5.370	
Date:	27.03.14			Time: 8:25	
Well Atmosphere (ppm):	-		After	SWL (m): 6.140	
Method:	MONSOON			Time: 9:10	
Total Volume Removed (L):	42 L		Depth to Product (m):	-	

Total Depth to Bottom of Well - Before & After Development (m): 7.050 & 7.050

Comments (Before and After Developing): 2 well volume: 4.0L (approx). Initial gasping showed Appearance and Odours: no indication of silt at the bottom of the well. Initial Other: Purging shows moderate volume of bright orange fine silt in water. Rinsed 42L. Cloudy.

**WELL PURGING: VT-MW01**

Sampler:	S. NUTHALAPATI	Before	SWL (m): 5.245
Date:	27.03.14		Time: 9:18
Well Atmosphere (ppm):	-	After	SWL (m): 6.200
Method:	MONSOON		Time: 9:50
Total Volume Removed (L):		Depth to Product (m):	7.540 & 7.540

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (µS or mS):	pH:	Eh (mV):

Comments: one well volume: 4.0L (approx). Removed 10L after first purging. Bright Appearance and Odours: orange, odourless, fine silt water. Rinsed: 42L. Cloudy. Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1. SWL - Standing water level (m) 2. SWL measured from the top of the casing, highest point 3. For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
--	----------------------------------





**WV**

**GROUNDWATER MONITORING REPORT**

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VULML101</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Brakes</u>		Before	SWL (m): <u>2.525</u>	
Date:	<u>24/3/14</u>			Time: <u>11:15</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>11:40</u>	
Total Volume Removed (L):	<u>~10L</u>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>4.600</u>	

Comments (Before and After Developing):  
 Appearance and Odours:  
 Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:  
 Appearance and Odours:  
 Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:  
 Appearance and Odours:  
 Other:

Containers Used:  Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------

## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VU-MW02</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Brookes</u>		Before	SWL (m): <u>4.845</u>	
Date:	<u>24/3/14</u>			Time: <u>16:25</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>16:40</u>	
Total Volume Removed (L):	<u>~15L</u>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>7.277</u>	

**Comments (Before and After Developing):**  
 Appearance and Odours: Turbid, grey/brown, no odour.  
 Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
<b>Comments:</b>																			
<b>Appearance and Odours:</b>																			
<b>Other:</b>																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
<b>Comments:</b>			
<b>Appearance and Odours:</b>			
<b>Other:</b>			
<b>Containers Used:</b>			
<input type="checkbox"/> Field Filtration Performed			

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VIA-MW03</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>D. Brookes</u>		Before	SWL (m): <u>9.850</u>	
Date:	<u>25/3/14</u>			Time: <u>14:20</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>Dry</u>	
Method:	<u>Monsoon</u>			Time: <u>14:55</u>	
Total Volume Removed (L): <u>None 20L</u>			Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<u>12.000</u>	

**Comments (Before and After Developing):**  
 Appearance and Odours: Turbid, red/brown, no odour.  
 Other: 20L developed at 14:55 25/3/14, dry.

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------





## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VU-MW05</i>
Location: <i>Vales Road</i>	Total Depth (m): <i>10.750</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2			Stage 1	Stage 2
Sampler:	<i>DBrooks</i>		Before	SWL (m):	<i>8.088</i>	
Date:	<i>24/3/14</i>			Time:	<i>08:45</i>	
Well Atmosphere (ppm):			After	SWL (m):	<i>Dry</i>	
Method:	<i>Monsoon</i>			Time:	<i>09:20</i>	
Total Volume Removed (L):	<i>~20L</i>		Depth to Product (m):			
Total Depth to Bottom of Well - Before & After Development (m):					<i>10.750</i>	
Comments (Before and After Developing): <i>Turbid, orange/brown. No odour.</i>						
Appearance and Odours:						
Other:						

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used: \_\_\_\_\_  Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VU-MW06</i>
Location: <i>Vales Point</i>	Total Depth (m): <i>10.070</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Brookes</i>		Before	SWL (m): <i>5.368</i>	
Date:	<i>24/3/14</i>			Time: <i>09:45</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>Dry</i>	
Method:	<i>Monsoon</i>			Time: <i>10:30</i>	
Total Volume Removed (L):	<i>~45L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<i>5.368</i>	<i>10.070</i>
Comments (Before and After Developing): <i>Turbid, orange/brown.</i>					
Appearance and Odours: <i>No odour.</i>					
Other:					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			

Containers Used:  Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:  Date:
---	--------------------------





## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony IV</i>	Well ID: <i>VU-MW07</i>
Location: <i>VU</i>	Total Depth (m): <i>8.820m.</i>

WELL FINISH:

Monument    
  PVC Stand Pipe    
  Gatic Cover    
  Other:

WELL DEVELOPMENT:		Stage 1	Stage 2	Stage 1	Stage 2
Sampler:		<i>S-Brooches</i>		Before SWL (m):	<i>7.36 m.</i>
Date:		<i>28-3-14</i>		Time:	<i>16:10</i>
Well Atmosphere (ppm):		<i>N/A</i>		After SWL (m):	<i>8.74 m</i>
Method:		<i>Bailer</i>		Time:	<i>14:45</i>
Total Volume Removed (L):		<i>&lt; 13L.</i>		Depth to Product (m):	<i>-</i>

Total Depth to Bottom of Well - Before & After Development (m):

Comments (Before and After Developing): *1st Bailer slightly cloudy, becoming turbid + thick @ VDL. Very bottom is still silty. No odours.*

Appearance and Odours: *turbid + thick @ VDL. Very bottom is still silty. No odours.*

Other:

WELL PURGING:		Before	SWL (m):
Sampler:			
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):			Depth to Product (m):

WELL PURGING - FIELD PARAMETER DATA									
Vol. Removed (L):									
Time:									
Temp:									
DO (% or ppm):									
EC (µS or mS):									
pH:									
Eh (mV):									

Comments:

Appearance and Odours:

Other:

WELL SAMPLING:		Temp. :
Sampler:		
Date:		DO (% or ppm):
Method:		EC (µS or mS):
Before SWL (m):		pH:
Time:		Eh (mV):

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: Date:
---	----------------------

## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VUL MW07</i>
Location: <i>Vales Point</i>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Brookes</i>		Before	SWL (m): <i>7.422</i>	
Date:	<i>26/3/14</i>			Time: <i>09:30</i>	
Well Atmosphere (ppm):			After	SWL (m):	
Method:	<i>Monsoon</i>			Time:	
Total Volume Removed (L):	<i>—</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<i>9.502</i>	

Comments (Before and After Developing):

Appearance and Odours:

Other: *Attempted to use monsoon pump 09:30 26/3/14, well too turbid, caused pump to jam. No water surged.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:  Date:
---	--------------------------



## GROUNDWATER MONITORING REPORT

Client: <u>Delta</u>	Job No: <u>0237747</u>
Project: <u>Symphony IV</u>	Well ID: <u>VU_MW08</u>
Location: <u>Vales Point</u>	Total Depth (m):

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<u>O. Brookes</u>		Before	SWL (m): <u>10.445</u>	
Date:	<u>25/3/14</u>			Time: <u>08:00</u>	
Well Atmosphere (ppm):			After	SWL (m): <u>10.450</u>	
Method:	<u>Monsoon</u>			Time: <u>08:45</u>	
Total Volume Removed (L):	<u>80L</u>		Depth to Product (m): <u>—</u>		
Total Depth to Bottom of Well - Before & After Development (m):				<u>14.160</u>	
Comments (Before and After Developing):					<u>14.160</u>
Appearance and Odours: <u>Turbid, brown, no colour, becoming clear after 48h.</u>					
Other:					

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0257745</i>
Project: <i>Symphony IV</i>	Well ID: <i>VU-MW09</i>
Location: <i>Vales Pass</i>	Total Depth (m): <i>11.700</i>

**WELL FINISH:**  
 Monument       PVC Stand Pipe       Gatic Cover       Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Bradus</i>		Before	SWL (m): <i>8.080</i>	
Date:	<i>24/3/14</i>			Time: <i>14:00</i>	
Well Atmosphere (ppm):			After	SWL (m): <i>Dry</i>	
Method:	<i>Monsoon</i>			Time: <i>14:30</i>	
Total Volume Removed (L):	<i>-18L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m):				<i>11.700</i>	

**Comments (Before and After Developing):**  
 Appearance and Odours: *Turbid, brown, no colour.*  
 Other:

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (µS or mS):																			
pH:																			
Eh (mV):																			
Comments:																			
Appearance and Odours:																			
Other:																			

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (µS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	
Comments:			
Appearance and Odours:			
Other:			
Containers Used:			

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------







## GROUNDWATER MONITORING REPORT

Client:	Job No: 0237747
Project: <i>Symphony IV</i>	Well ID: <i>VU-MW13</i>
Location: <i>VU</i>	Total Depth (m): <i>11.960</i>

WELL FINISH:

Monument
  PVC Stand Pipe
  Gatic Cover
  Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>S. Brooks</i>		Before	SWL (m): <i>8.480</i>	
Date:	<i>28-3-14</i>			Time: <i>14:55</i>	
Well Atmosphere (ppm):	<i>N/A</i>		After	SWL (m): <i>11.20</i>	
Method:	<i>Monsoon</i>			Time: <i>15:15</i>	
Total Volume Removed (L):	<i>15L</i>		Depth to Product (m):		
Total Depth to Bottom of Well - Before & After Development (m): <i>11.960 / 11.960m</i>					

Comments (Before and After Developing): *Silty bottom @ Pre-gauge.*

Appearance and Odours:

Other: *Well purged dry @ 15L, started to turn & slightly cloudy from 10L.*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING - FIELD PARAMETER DATA**

Vol. Removed (L):	Time:	Temp:	DO (% or ppm):	EC (αS or mS):	pH:	Eh (mV):

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp.:	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------





## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>				Job No: <i>0237747</i>			
Project: <i>Symphony IV</i>				Well ID: <i>VU-MW14</i>			
Location: <i>Vales Point</i>				Total Depth (m):			
WELL FINISH:							
<input checked="" type="checkbox"/> Monument		<input type="checkbox"/> PVC Stand Pipe		<input type="checkbox"/> Gatic Cover		<input type="checkbox"/> Other:	
WELL DEVELOPMENT:							
	Stage 1	Stage 2		Stage 1	Stage 2		
Sampler:	<i>D. Brookes</i>		Before	SWL (m):	<i>9.055</i>		
Date:	<i>24/3/14</i>			Time:	<i>15:20</i>		
Well Atmosphere (ppm):			After	SWL (m):	<i>12. Dry</i>		
Method:	<i>Monsoon</i>			Time:	<i>16:00</i>		
Total Volume Removed (L):	<i>~27L</i>		Depth to Product (m):		<i>-</i>		
Total Depth to Bottom of Well - Before & After Development (m):					<i>12.722</i>		
Comments (Before and After Developing):							
Appearance and Odours: <i>Turbid, brown, no odour.</i>							
Other:							
WELL PURGING:							
Sampler:			Before	SWL (m):			
Date:				Time:			
Well Atmosphere (ppm):			After	SWL (m):			
Method:				Time:			
Total Volume Removed (L):			Depth to Product (m):				
WELL PURGING - FIELD PARAMETER DATA							
Vol. Removed (L):							
Time:							
Temp:							
DO (% or ppm):							
EC (αS or mS):							
pH:							
Eh (mV):							
Comments:							
Appearance and Odours:							
Other:							
WELL SAMPLING:							
Sampler:		Temp. :					
Date:		DO (% or ppm):					
Method:		EC (αS or mS):					
Before SWL (m):		pH:					
Time:		Eh (mV):					
Comments:							
Appearance and Odours:							
Other:							
Containers Used:							
<input type="checkbox"/> Field Filtration Performed							
Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'				Checked By:			
				Date:			

## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VU_MW15</i>
Location: <i>Vales Point</i>	Total Depth (m): <i>6.874</i>

WELL FINISH:

Monument     
  PVC Stand Pipe     
  Gatic Cover     
  Other:

WELL DEVELOPMENT:		Stage 1	Stage 2	Stage 1	Stage 2
Sampler:	<i>D. Brookes</i>			Before SWL (m):	<i>4.120</i>
Date:	<i>26/3/14</i>			Time:	<i>08:00</i>
Well Atmosphere (ppm):				After SWL (m):	<i>Dry</i>
Method:	<i>Monsoon</i>			Time:	<i>09:00</i>
Total Volume Removed (L):	<i>22L</i>			Depth to Product (m):	
Total Depth to Bottom of Well - Before & After Development (m):					<i>6.874</i>

Comments (Before and After Developing):

Appearance and Odours: *Turbid, dark red, no colour. Becoming clear after ~15L*

Other: *Dry.*

WELL PURGING:		Before	SWL (m):
Sampler:			
Date:			Time:
Well Atmosphere (ppm):		After	SWL (m):
Method:			Time:
Total Volume Removed (L):			Depth to Product (m):

WELL PURGING - FIELD PARAMETER DATA											
Vol. Removed (L):											
Time:											
Temp:											
DO (% or ppm):											
EC (αS or mS):											
pH:											
Eh (mV):											

Comments:

Appearance and Odours:

Other:

WELL SAMPLING:		Temp. :
Sampler:		
Date:		DO (% or ppm):
Method:		EC (αS or mS):
Before SWL (m):		pH:
Time:		Eh (mV):

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL - Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By: _____ Date: _____
---	----------------------------------



## GROUNDWATER MONITORING REPORT

Client: <i>Delta</i>	Job No: <i>0237747</i>
Project: <i>Symphony IV</i>	Well ID: <i>VUL MH17</i>
Location: <i>Vales Point</i>	Total Depth (m):

**WELL FINISH:**  
 Monument     PVC Stand Pipe     Gatic Cover     Other:

**WELL DEVELOPMENT:**

	Stage 1	Stage 2		Stage 1	Stage 2
Sampler:	<i>D. Brookes</i>		Before	SWL (m): <i>3.980</i>	<i>4.615</i>
Date:	<i>25/3/14</i>			Time: <i>09:10</i>	<i>13:20</i>
Well Atmosphere (ppm):			After	SWL (m): <i>Dry</i>	<i>Dry</i>
Method:	<i>Mangroon</i>			Time: <i>10:00</i>	<i>13:35</i>
Total Volume Removed (L):	<i>40L.</i>		Depth to Product (m):	<i>→</i>	
Total Depth to Bottom of Well - Before & After Development (m):				<i>8.830</i>	

Comments (Before and After Developing):

Appearance and Odours:  
 Other: *Purged dry and allowed to recharge at 09:20, 09:45 & 10:00. 25/3/14*  
*20L total. Returned @ 13:20 and purged further 20L*

**WELL PURGING:**

Sampler:		Before	SWL (m):	
Date:			Time:	
Well Atmosphere (ppm):		After	SWL (m):	
Method:			Time:	
Total Volume Removed (L):		Depth to Product (m):		

**WELL PURGING – FIELD PARAMETER DATA**

Vol. Removed (L):																			
Time:																			
Temp:																			
DO (% or ppm):																			
EC (αS or mS):																			
pH:																			
Eh (mV):																			

Comments:

Appearance and Odours:

Other:

**WELL SAMPLING:**

Sampler:		Temp. :	
Date:		DO (% or ppm):	
Method:		EC (αS or mS):	
Before SWL (m):		pH:	
Time:		Eh (mV):	

Comments:

Appearance and Odours:

Other:

Containers Used:

Field Filtration Performed

Notes: 1 SWL – Standing water level (m) 2 SWL measured from the top of the casing, highest point 3 For calibration records, refer to 'Field Equipment Calibration Record'	Checked By:
	Date:



Annex F

QA/QC

The objective of this data assessment is to evaluate the quality of data gathered during the project. This process has been undertaken to assess whether the sample data is of a suitable standard to be utilised in this report. The data assessment consists of comparing field and laboratory QA/QC results to documented NEPM, ANZECC, USEPA SW-846 guidelines, USEPA CLP National Functional Guidelines for Inorganic and Organic Data Review, and other internationally recognised publications. The data assessment has been prepared in accordance with the NEPC (2013) *National Environmental Protection (Assessment of Site Contamination) Measure 1999* and NSW EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites* and NSW DEC (2006) *Guidelines for the NSW Site Auditor Scheme (2<sup>nd</sup> Edition)*. Particular reference is made to the PARCC parameters (precision, accuracy, representativeness, completeness and comparability) in evaluating the data quality.

Table F1 presents the degree of QA/QC pertinent to the field investigations.

Table F2 presents the degree of QA/QC pertinent to the laboratory program.

The data quality indicators of precision, accuracy, representativeness, comparability and completeness have been assessed as shown in Table F3.

Table F1 Field QA/QC Assessment

QA/QC Criterion	Comments
QA/QC program includes replicate samples	<p>Field quality control samples including 62 intra-laboratory duplicates (33 soil, 22 water, and 7 sediment) were analysed to assess the suitability of the data. 21 inter-laboratory duplicate samples (12 soil, 5 water and 4 sediment) were sent to a secondary laboratory.</p> <p>The number of samples analysed, including QA/QC replicates, are presented in Table F.4 and Table F.4(a).</p> <p>Duplicate samples were collected following ERM standard operating procedures, at the required ratio of at least one duplicate for 10 primary samples (10%) and one inter lab duplicate for every 20 primary samples (5%) for sediment samples only. For soils the ratio was 8% and 3% and for water samples, the ratio was 15% and 3%. For additional water samples collected 27/05/2014, the ratio was 33% and 33%.</p> <p>The non-conformance with the ERM standard operating procedure for soil and water duplicates and inter lab duplicates is considered to be minor, with many of the soil samples found to have concentrations below the limit of reporting.</p> <p>The sediment sampling undertaken on this site was completed at the same time as the sediment sampling for Colongra Power Station and sediment samples for both sites were sent to their respective laboratories within the same batches. For the total of sediments from Vales Point Power Station and Colongra Power Station, the ratios for sediment duplicates and inter lab duplicates were 18% and 11% respectively. This is considered to be in accordance with the ERM standard operating procedure.</p>
All relevant media assessed	Soil, sediment, and groundwater and surface water samples were collected from all identified Areas of Environmental Concern (AECs) as part of the characterisation program.



QA/QC Criterion	Comments
Appropriateness of sampling strategy	Based on the results of the ERM PESA (2014) and consideration of the intended approach to establishing a baseline of soil and groundwater contamination, the most appropriate sampling design was considered to be a judgemental (targeted) sampling of soil, groundwater, surface water and sediments at the established AECs for the Site. The spatial coverage achieved was considered to be suitable in achieving the project objectives within the constraints of safe and reasonable access. Where investigation locations were not able to be completed due to logistical issues, these were discussed in the report.
Sample collection, handling and transportation procedures.	Samples were collected, handled and transported following ERM standard operating procedures as described in the <i>Vales Point PESA [Reference 0227637RP01]</i> (ERM, 2014).
Sampling is representative of site conditions	<p>Representative samples were collected from all identified AECs including soil, groundwater, surface water and sediment.</p> <ul style="list-style-type: none"> <li>• Field screening - including PID measurements and visual/olfactory observations were noted throughout the drilled profile.</li> <li>• Sample Collection - samples were generally collected at the surface and 0.5 m intervals for the first 2 m and every 1 m thereafter, or where changes in lithological units or significant contamination were noted.</li> <li>• Sample Analysis - generally one shallow sample targeting fill and the zone of surface impacts (0-1.5 m bgl) and one deeper sample targeting natural soil/geology between vadose zone and water bearing unit. Shallow bedrock and refusal on rubble occasionally restricted collecting a second sample from the deeper soil profile.</li> <li>• Groundwater - selected soil bores were converted to monitoring wells and groundwater samples were collected. Groundwater monitoring wells were selected to target areas with potential impact or boundary/background areas and to aid in the assessment of groundwater flow directions.</li> </ul>
Field QA/QC plan	<p>The sampling team comprised suitably qualified and experienced ERM environmental scientists.</p> <p>Borehole logs and/or other sampling records were completed, describing the media sampled, the duplicate types and sampling locations.</p> <p>Samples were collected using a combination of hand auger (during NDD), push tube, and where geology necessitated hollow and solid flight auger drilling techniques. Soil samples were placed in laboratory supplied sample jars, stored in an insulated cooler, and forwarded to the NATA accredited laboratory under COC conditions. The methods used to collect the samples, the types of sample containers, preservation techniques and custody protocols were documented appropriately.</p> <p>Inter-laboratory and intra-laboratory analytical results and their relative percentage differences (RPDs) are presented in <i>Table F5 and F6 Series</i>. Where samples were collected from push tube cores, samples were not homogenised prior to splitting to minimise loss of volatile analytes. Volatile analytes may have been lost where samples were collected from hand augers, hollow and solid flight augers. The RPDs of the duplicate sample pairs were generally below the acceptance limits (30% RPD where one or both values were greater than 10 x LOR or 50% RPD where both values less than 10 x LOR).</p>

QA/QC Criterion	Comments
	<p>An evaluation of the analytical data indicated that the data was generally of acceptable precision and accuracy. Minor exceedances of RPD acceptable limits were noted for some primary and duplicate sample pairs, as presented in <i>Table F5 and F6 Series</i> and summarised below.</p> <p>Decontamination procedures were implemented between the collection of different groundwater samples. Cross contamination was not considered likely during soil sampling from disposable push tube liners, and decontamination was not undertaken. The processes followed were considered suitable for minimising cross-contamination during sampling.</p> <p>Rinsate blanks were collected to demonstrate the efficacy of the decontamination procedures during groundwater sampling (refer to <i>Tables F7a to F7g</i>).</p> <p>Contaminants of concern were below the laboratory limit of reporting in the rinsate samples with the minor exceptions presented in <i>Table F7a to F7f</i> and summarised below.</p> <p>Trip blank samples were collected as part of this investigation. All COPCs were reported below the laboratory LOR (refer to <i>Table F8 Series</i>).</p> <p>Trip spikes were collected as part of this investigation. All COPCs were reported within the acceptable range apart from minor exceptions presented in <i>Table F9</i> and presented below.</p> <p>Field instruments used as part of this investigation were appropriately calibrated and used according to the manufacturers' instructions. Calibration certificates are provided in <i>Annex E</i>.</p>

#### *Field QA/QC Exceedances*

Minor exceedances of field duplicate RPD acceptable limits were noted for primary and duplicate samples, as presented in *Table F5 and F6 Series*. Elevated relative percentage differences (RPDs) between soil/sediment duplicate samples were generally attributed to the heterogeneity of the soil matrix, but also for several analytes, the concentrations for one of the samples was below the limit of reporting for the laboratory and the other was close to the limit of reporting for the separate laboratory. The analytes were below the adopted guideline value (where available) and therefore these non-conformances were not expected to materially affect the outcomes of this investigation.

Elevated RPDs between some groundwater duplicate sample pairs were generally associated with heavy metal COPCs. The range in metal concentrations are considered representative of background levels. These non-conformances were not expected to materially affect the outcomes of this investigation.

Rinsate samples collected during soil sampling were collected from the Hand Auger or a trowel following decontamination. Rinsate samples collected during groundwater sampling were taken following decontamination of the interface probe, or from the micropurge pump (when used). Of the 38 rinsate samples collected during the soil, sediment, groundwater and surface water sampling program, seven rinsate samples were reported to contain minor concentrations of contaminants. The samples with detections of contaminants were:

- R03\_260314\_SO, 26/03/2014 for zinc (6 ug/L)
- R01\_21.3.14\_WG, 21/03/2014 for Chromium (III + VI), Copper and Nickel (40, 4 and 2 ug/L respectively)
- R01\_100314\_SB, 10/03/2014 for zinc (9 ug/L)
- R01\_270214, 27/02/2014 for zinc (6 ug/L)
- R01\_040314, 4/03/2014 for zinc (23 ug/L)
- R01\_070314\_SB, 7/03/2014 for barium and zinc (1 and 50 ug/L respectively)

The concentrations in the rinsate samples for zinc are above the ecological screening criteria of 15 ug/L in two of these six samples. For both of these rinsate samples, soil samples taken on these dates exceeded the screening values for zinc. The concentrations of chromium (III + VI), copper, nickel and barium were all only marginally greater than the LOR and soil samples taken on these dates did not exceed the adopted screening values for these metals.

While the rinsate samples suggest there may have been some minor cross-contamination of chromium, copper, nickel and zinc, this is unlikely to materially affect the outcomes of the investigation.

Four of the trip spike samples were found to be outside the acceptable limits of 70 - 130%. All four trip spike samples were found to have a low recoverability for BTEX. The trip spike non-conformances are listed below:

- Trip Spike 1 (sample code ES 1405876002) had recoveries for BTEX ranging from 64% to 70%;
- TSP 16 (sample code ES 1404881007) had recoveries for BTEX ranging from 60% to 68%;
- Trip Spike 1 (sample code ES 1405740005) had recoveries for BTEX ranging from 65% to 68%
- TSP 1 (sample code ES 1405360014) had a recovery for Benzene of 50%

The slightly low recoverabilities on these spikes are potentially indicative of a loss of volatiles during the trip. None of the soil samples sent with these spikes were found to have concentrations of BTEX above the LOR. PID readings taken from these samples did not indicate the presence of volatile hydrocarbons. These minor non-conformances are not considered to affect the outcome of the interpretation of this data.

Table F2 Laboratory QA/QC Assessment

QA/QC Criterion	Comments
Appropriate methodologies used for sample analyses	<p>The primary laboratory used for the investigation was NATA accredited ALS, NATA Registration No. 825. The secondary laboratory used for the investigation was NATA accredited Envirolab, NATA Registration No 2901. All laboratory reports were NATA stamped and signed by a NATA signatory. All analytical methodologies were considered appropriate for the identified contaminants of potential concern in the matrix.</p> <p>Statistical data presented in the laboratory QA/QC report was considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.</p>
Appropriate practical quantitation limits (LORs)	<p>LORs for each analyte are presented in the laboratory reports. All sample results were reported with LORs below the site assessment criteria with the exception of a small number of volatile organic compounds in groundwater (vinyl chloride, chloromethane, bromomethane, 1,2-Dichloroethane, hexachlorobutadiene, 1,2,3-trichlorobenzene and 1,2-dibromomethane), PAH compounds (Benzo(a) pyrene and Carcinogenic PAHs (as BaP TEQ) and PAHs in sediments (Acenaphthene, Acenaphthylene Anthracene, Anthracene, Benzo(a) pyrene, Naphthalene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Pyrene, Phenanthrene).</p>
Laboratory QA/QC plan	<p>Copies of signed chain of custody forms were returned by the laboratory.</p> <p>Samples were received and analysed within specified laboratory holding times with the exception of holding time exceedances for mercury in 7 samples from the VO AEC. These samples were re-analysed for dissolved metals as they had previously been erroneously analysed for total metals. Whilst this occurred within the holding time for all other metals, the holding time for mercury is 28 days and was therefore exceeded by 5 days. There were also minor exceedances for vinyl chloride and styrene as listed in Table F14. These samples were from three sample batches, ES14065900, ES14069070 and ES14070230 and the holding times were exceeded by 0.375 – 2.375 days for both compounds. These holding time non-conformances are relatively minor are not considered to have material effects on the investigation. This information was documented on the laboratory reports.</p> <p>The analytical methods used were NATA approved as documented on the laboratory reports.</p> <p>Laboratory quality control samples included laboratory control samples, internal duplicates, matrix spikes and method blanks. The types of QA/QC samples analysed by the laboratory for the documented samples were considered sufficient to assess the precision and accuracy of the laboratory methods used.</p> <p>The statistical data presented in the laboratory QA/QC report was considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples. Minor exceedances of the acceptance criteria were noted, as presented in <i>Table F10 Series to Table F13 Series</i>.</p>

Table F3 Overall Sampling and Analysis Methodology Assessment

Field Considerations	Laboratory Considerations
<i>Precision Requirements</i>	
The investigation was conducted following ERM SOPs and any variations from these procedures were documented.	Analysis of the following were reported: laboratory and inter-laboratory duplicates; field duplicates; and laboratory prepared volatile trip spikes.
<i>Precision Comments</i>	
No significant variations from ERM SOPs were noted. Field split duplicates were generally reported within the acceptance limits of 30% RPD where one or both values were greater than 10 x LOR or 50% RPD where both values less than 10 x LOR. Minor exceedances were noted, as presented in Table F5 Series. Trip spike recoveries were within the acceptance limits of 70% to 130% RPD. Exceedances were noted, as presented in Table F9 series. Trip spike recoveries from two trip spikes were not within acceptable ranges. As discussed previously, these results are generally not considered to affect analytical results. It is noted that PID field screening results from samples collected as part of these laboratory batches, where available, correlated with results of analysis or otherwise suggested that volatiles were not likely to be present.	
<i>Accuracy Requirements</i>	
The investigation was conducted following ERM SOPs and any variations from these procedures were documented.	Analysis of the following were reported: field blanks; rinsate blanks; reagent blanks; method blanks; matrix spikes; surrogate spikes; laboratory control samples; and laboratory prepared spikes.
<i>Accuracy Comments</i>	
No significant variations from ERM SOPs were noted. Laboratory QA/QC samples were reported within the acceptance limits specified in the laboratory reports. Exceptions are presented in Table F10 Series to Table F14 Series and the laboratory reports.	
<i>Representativeness Requirements</i>	
Appropriate media were identified and sampled according to the SAQP.	All samples were analysed in general accordance with the SAQP.
<i>Representativeness Comments</i>	
No exceedances of the requirements were noted.	
<i>Comparability Requirements</i>	
The same SOPs were used during each sampling event.	Analytical methods suitable for the target media were used.
All sampling was conducted by an appropriately qualified and experienced sampler.	The LORs used to report analyte concentrations were less than the adopted investigation levels for most analytes, however exceptions were noted.
The types of samples collected were consistent.	The same laboratories were used to analyse all sample.
Results of Field Screening comparable with Lab analysis.	The same units were used to report analyte concentrations.



Field Considerations	Laboratory Considerations
	<p>Results of Lab analysis comparable with field screening results.</p> <p>Results of TPH C6-C9 comparable to BTEX etc.</p>
<i>Comparability Comments</i>	
<p>All sample results were reported with LORs below the site assessment criteria with the exception of a small number of VOCs and PAH compounds.</p>	
<i>Completeness Requirements</i>	
<p>All critical locations were sampled.</p> <p>The investigation was conducted following ERM SOPs and variations from these procedures were documented.</p> <p>All sampling was conducted by an appropriately qualified and experienced sampler.</p> <p>Documentation of field works was provided.</p>	<p>All critical samples were analysed according to SAQP.</p> <p>All analytes were analysed according to the SAQP.</p> <p>Appropriate analysis methods and LORs were used.</p> <p>Sample documentation was provided.</p> <p>Sample holding times were complied with, apart from of vinyl chloride and styrene in three sample batches, where samples were held up to two and a half days longer than the specified holding time prior to analysis.</p>
<i>Completeness Comments</i>	
<p>Holding time exceptions are presented in <i>Table F14</i> and the laboratory reports, and apply only to three sample batches. Where investigation locations were not able to be completed due to logistical issues, these were discussed in Table 3.1 in the report. A number of LORs for VOCs in groundwater and PAHs in sediment were below adopted assessment criteria and were discussed in Section 3.5.3 of the report. Given the extent of investigation successfully completed across the site, including targeting of potential sources within AECs, the variations from the SAQP were minor and are generally not considered to affect the outcomes of the investigation.</p>	



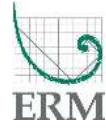
**Table F4. QA/QC Summary of Samples Analysed  
Vales Point Power Station - Stage 2 ESA  
Project Symphony - 0237747**

<b>Matrix Type</b>	<b>Sediment</b>	<b>Soil</b>	<b>Water</b>
<b>First Sample Date</b>	27/02/2014	25/02/2014	27/02/2014
<b>Last Sample Date</b>	18/03/2014	31/03/2014	2/04/2014
<b>Sampling Period (days)</b>	6	39	34
<b>Number of Samples Submitted</b>	49	461	217
<b>Number of Non QA Samples Submitted</b>	38	393	141
<b>Number of Field Blanks</b>	0	0	0
<b>Number of Trip Blanks</b>	0	23	13
<b>Number of Rinsates</b>	0	0	38
<b>Number of Field Duplicates</b>	7	33	21
<b>Number of Interlab Duplicates</b>	4	12	4
<b>Number of Trip Spikes</b>	0	23	14
<b>Number of Lab Duplicates</b>	0	651	328
<b>Number of LCSs</b>	0	330	288
<b>Number of CRMs</b>	0	0	0
<b>Number of Method Blanks</b>	0	262	220
<b>Number of Storage Blanks</b>	0	0	0
<b>Number of Matrix Spikes</b>	0	307	181
<b>Number of Matrix Spike Dupes</b>	0	0	0



**Table F4(a). QA/QC Summary of Samples Analysed  
Vales Point Power Station - Stage 2 ESA  
Project Symphony - 0237747**

<b>Matrix Type</b>	Water
<b>First Sample Date</b>	27/05/2014
<b>Last Sample Date</b>	27/05/2014
<b>Sampling Period (days)</b>	1
<b>Number of Samples Submitted</b>	6
<b>Number of Non QA Samples Submitted</b>	3
<b>Number of Field Blanks</b>	0
<b>Number of Trip Blanks</b>	1
<b>Number of Rinsates</b>	1
<b>Number of Field Duplicates</b>	1
<b>Number of Interlab Duplicates</b>	1
<b>Number of Trip Spikes</b>	1
<b>Number of Lab Duplicates</b>	9
<b>Number of LCSs</b>	14
<b>Number of CRMs</b>	0
<b>Number of Method Blanks</b>	9
<b>Number of Storage Blanks</b>	0
<b>Number of Matrix Spikes</b>	8
<b>Number of Matrix Spike Dupes</b>	0



SDG	ES1406498	ES1406498	ALSE-Sydney 27-Mar-14	ALSE-Sydney 27-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ES1406498
Field_ID	VO_MW08_1.8	D01_240314_CM	VO_MW15_4.5	D01_260314_SB	VK_SB02_3.9	D01_270314_GP	VC_MW03_0.1	D01_310314_GP	VO_MW08_1.8
Sampled_Date-Time	24/03/2014 15:00	24/03/2014 15:00	26/03/2014 15:00	26/03/2014 15:00	27/03/2014 8:45	27/03/2014 8:45	31/03/2014 14:45	31/03/2014 14:45	24/03/2014 15:00

Method_Type	ChemName	Units	EQL	ES1406498	ES1406498	ALSE-Sydney 27-Mar-14	ALSE-Sydney 27-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ES1406498				
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	13.5	11.8	13	12.4	10.3	19	9.9	10.4	5	2.5	3.6	36	13.5
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
pHs (SIM)	pH (Lab)	pH_Units	0.1				4.1	4.1	0							
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	mg/kg	0.1										<0.1	<0.1	0	
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Barium	mg/kg	10 (Primary): 1 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0
	Beryllium	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0
	Boron	mg/kg	50 (Primary): 3 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	6.0	3.0	67	12.0	5.0	82	6.0	5.0	18	9.0	5.0	57	6.0
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	6.0	6.0	0	18.0	12.0	40	<5.0
	Lead	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	8.0	14.0	55	<5.0
	Manganese	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	7.0	4.0	55	<2.0
	Selenium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Thallium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)	10.0	<5.0	67	43.0	8.0	137							10.0
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	6.0	<5.0	18	<5.0	<5.0	0	43.0	40.0	7	152.0	198.0	26	6.0
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	970.0	1020.0	5	<100.0
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	830.0	890.0	7	<100.0
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	1800.0	1910.0	6	<50.0
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	1610.0	1700.0	5	<100.0
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	460.0	480.0	4	<100.0
	TRH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	2070.0	2180.0	5	<50.0
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2
	TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0</						



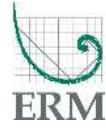
SDG	ES1406498	ES1406498		ALSE-Sydney 27-Mar-14	ALSE-Sydney 27-Mar-14		ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14		ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14		ES1406498
Field_ID	VO_MW08_1.8	D01_240314_CM	RPD	VO_MW15_4.5	D01_260314_SB	RPD	VK_SB02_3.9	D01_270314_GP	RPD	VC_MW03_0.1	D01_310314_GP	RPD	VO_MW08_1.8
Sampled_Date-Time	24/03/2014 15:00	24/03/2014 15:00		26/03/2014 15:00	26/03/2014 15:00		27/03/2014 8:45	27/03/2014 8:45		31/03/2014 14:45	31/03/2014 14:45		24/03/2014 15:00

es/BTEX															
Volatile Organic Compounds	1,1,1,2-tetrachloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1,1-trichloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1,2,2-tetrachloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1,2-trichloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1-dichloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1-dichloroethene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,1-dichloropropene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2,3-trichlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2,3-trichloropropane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2,4-trichlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2,4-trimethylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2-dibromo-3-chloropropane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2-dibromoethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2-dichlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2-dichloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,2-dichloropropane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,3,5-trimethylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,3-dichlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,3-dichloropropane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	1,4-dichlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	2,2-dichloropropane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	2-chlorotoluene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Methyl Ethyl Ketone	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	2-hexanone (MBK)	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	4-chlorotoluene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	4-Methyl-2-pentanone	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Bromobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Bromodichloromethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Bromoform	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Bromomethane	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Carbon disulfide	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Carbon tetrachloride	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	5 (Primary): 1 (Interlab)							<5.0	<5.0	0	<5.0	<5.0	0
	Chlorobenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Chlorodibromomethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Chloroethane	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Chloroform	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Chloromethane	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	cis-1,2-dichloroethene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	cis-1,3-dichloropropene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	cis-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Dibromomethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Dichlorodifluoromethane	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Hexachlorobutadiene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Iodomethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Isopropylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	n-butylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	n-propylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Pentachloroethane	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	p-isopropyltoluene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	sec-butylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Styrene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Trichloroethene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	tert-butylbenzene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Tetrachloroethene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	trans-1,2-dichloroethene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	trans-1,3-dichloropropene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	trans-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	0	<0.5	<0.5	0
	Trichlorofluoromethane	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Vinyl acetate	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0
	Vinyl chloride	mg/kg	5							<5.0	<5.0	0	<5.0	<5.0	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



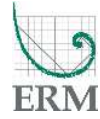
Method_Type	ChemName	Units	EQL	Interlab_D T01_240314_CM RPD		ALSE-Sydney 27-Mar-14 VO_MW15_4.5		Interlab_D T01_260314_SB RPD		ALSE-Sydney 02-Apr-14 VC_MW03_0.1		Interlab_D T01-310314-GP RPD	
				Sampled_Date-Time	24/03/2014 15:00	RPD	26/03/2014 15:00	26/03/2014 15:00	RPD	31/03/2014 14:45	31/03/2014 14:45	RPD	
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	10.0	30	12.4	12.0	3	2.5	15.0	143		
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5			<0.5			<0.5				
	2,4,6-trichlorophenol	mg/kg	0.5			<0.5			<0.5				
	2,4-dichlorophenol	mg/kg	0.5			<0.5			<0.5				
	2,4-dimethylphenol	mg/kg	0.5			<0.5			<0.5				
	2,6-dichlorophenol	mg/kg	0.5			<0.5			<0.5				
	2-chlorophenol	mg/kg	0.5			<0.5			<0.5				
	2-methylphenol	mg/kg	0.5			<0.5			<0.5				
	2-nitrophenol	mg/kg	0.5			<0.5			<0.5				
	3-&4-methylphenol	mg/kg	1			<1.0			<1.0				
	4-chloro-3-methylphenol	mg/kg	0.5			<0.5			<0.5				
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.05	0	<0.5	<0.05	0	<0.5	<0.05	0		
	Benzo(b)fluoranthene	mg/kg	0.5			<0.5			<0.5				
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Benzo(k)fluoranthene	mg/kg	0.5			<0.5			<0.5				
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5			0.6			0.6				
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	<0.5	82	1.2	<0.5	82	1.2	<0.5	82		
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0		
	Pentachlorophenol	mg/kg	2			<2.0			<2.0				
	PAHs (Sum of total)	mg/kg	0.5	0.0	0	<0.5	0.0	0	<0.5	0.0	0		
	Phenol	mg/kg	0.5			<0.5			<0.5				
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5			<0.5			<0.5				
pHs (SIM)													
pH (1:5)	pH (Lab)	pH_Units	0.1			4.1							
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	mg/kg	0.1						<0.1				
ated Biphenyls (PCB)													
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0		
ry by FIMS													
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<4.0	0	<5.0	<4.0	0	<5.0	<4.0	0		
	Barium	mg/kg	10 (Primary): 1 (Interlab)	5.0	0	<10.0	3.0	0					
	Beryllium	mg/kg	1	<1.0	0	<1.0	<1.0	0					
	Boron	mg/kg	50 (Primary): 3 (Interlab)	<3.0	0	<50.0	<3.0	0					
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<0.4	0	<1.0	<0.4	0	<1.0	<0.4	0		
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	5.0	18	12.0	4.0	100	9.0	6.0	40		
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)	<1.0	0	<2.0	<1.0	0					
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<1.0	0	<5.0	<1.0	0	18.0	2.0	160		
	Lead	mg/kg	5 (Primary): 1 (Interlab)	4.0	0	<5.0	3.0	0	8.0	5.0	46		
	Manganese	mg/kg	5 (Primary): 1 (Interlab)	2.0	0	<5.0	<1.0	0					
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)	<1.0	0	<2.0	<1.0	0					
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<1.0	0	<2.0	<1.0	0	7.0	1.0	150		
	Selenium	mg/kg	5 (Primary): 2 (Interlab)	<2.0	0	<5.0	<2.0	0					
	Thallium	mg/kg	5 (Primary): 2 (Interlab)	<2.0	0	<5.0	<2.0	0					
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)	5.0	67	43.0	19.0	77					
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	3.0	67	<5.0	<1.0	0	152.0	11.0	173		
s by ICP-AES													
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	0	<100.0	<100.0	0	970.0	<100.0	163		
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	0	<100.0	<100.0	0	830.0	<100.0	157		
	TRH >C10-C36 Fraction	mg/kg	50			<50.0			1800.0				
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	0	<100.0	<100.0	0	1610.0	<100.0	177		
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	0	<100.0	<100.0	0	460.0	<100.0	129		
	TRH >C10-C40 Fraction	mg/kg	50			<50.0			2070.0				
ivolatile Fraction													
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0		
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0		
	Toluene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0		
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0		
	Total BTEX	mg/kg	0.2			<0.2			<0.2				
	TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0		
	Xylene (m & p)	mg/kg	0.5 (Primary): 2 (Interlab)	<2.0	0	<0.5	<2.0	0	<0.5	<2.0	0		
	TRH >C6-C10 less BTEX (F1)	mg/kg	10 (Primary): 25 (Interlab)	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0		
	Xylene (o)	mg/kg	0.5 (Primary): 1 (Interlab)	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0		
	Xylene Total	mg/kg	0.5			<0.5			<0.5				
	Naphthalene	mg/kg	1 (Primary): 0.1 (Interlab)	<0.1	0	<1.0	<0.1	0	<1.0	<0.1	0		





SDG	Interlab_D	ALSE-Sydney 27-Mar-14	Interlab_D	ALSE-Sydney 02-Apr-14	Interlab_D
Field_ID	T01_240314_CM	VO_MW15_4.5	T01_260314_SB	VC_MW03_0.1	T01-310314-GP
Sampled_Date-Time	24/03/2014 15:00	26/03/2014 15:00	26/03/2014 15:00	31/03/2014 14:45	31/03/2014 14:45
	RPD		RPD		RPD
es/BTEX					
Volatile Organic Compounds				<0.5	
1,1,1,2-tetrachloroethane	mg/kg	0.5		<0.5	
1,1,1-trichloroethane	mg/kg	0.5		<0.5	
1,1,2,2-tetrachloroethane	mg/kg	0.5		<0.5	
1,1,2-trichloroethane	mg/kg	0.5		<0.5	
1,1-dichloroethane	mg/kg	0.5		<0.5	
1,1-dichloroethene	mg/kg	0.5		<0.5	
1,1-dichloropropene	mg/kg	0.5		<0.5	
1,2,3-trichlorobenzene	mg/kg	0.5		<0.5	
1,2,3-trichloropropane	mg/kg	0.5		<0.5	
1,2,4-trichlorobenzene	mg/kg	0.5		<0.5	
1,2,4-trimethylbenzene	mg/kg	0.5		<0.5	
1,2-dibromo-3-chloropropane	mg/kg	0.5		<0.5	
1,2-dibromoethane	mg/kg	0.5		<0.5	
1,2-dichlorobenzene	mg/kg	0.5		<0.5	
1,2-dichloroethane	mg/kg	0.5		<0.5	
1,2-dichloropropane	mg/kg	0.5		<0.5	
1,3,5-trimethylbenzene	mg/kg	0.5		<0.5	
1,3-dichlorobenzene	mg/kg	0.5		<0.5	
1,3-dichloropropane	mg/kg	0.5		<0.5	
1,4-dichlorobenzene	mg/kg	0.5		<0.5	
2,2-dichloropropane	mg/kg	0.5		<0.5	
2-chlorotoluene	mg/kg	0.5		<0.5	
Methyl Ethyl Ketone	mg/kg	5		<5.0	
2-hexanone (MBK)	mg/kg	5		<5.0	
4-chlorotoluene	mg/kg	0.5		<0.5	
4-Methyl-2-pentanone	mg/kg	5		<5.0	
Bromobenzene	mg/kg	0.5		<0.5	
Bromodichloromethane	mg/kg	0.5		<0.5	
Bromoform	mg/kg	0.5		<0.5	
Bromomethane	mg/kg	5		<5.0	
Carbon disulfide	mg/kg	0.5		<0.5	
Carbon tetrachloride	mg/kg	0.5		<0.5	
Naphthalene	mg/kg	5 (Primary): 1 (Interlab)		<5.0	<0.1
Chlorobenzene	mg/kg	0.5		<0.5	
Chlorodibromomethane	mg/kg	0.5		<0.5	
Chloroethane	mg/kg	5		<5.0	
Chloroform	mg/kg	0.5		<0.5	
Chloromethane	mg/kg	5		<5.0	
cis-1,2-dichloroethene	mg/kg	0.5		<0.5	
cis-1,3-dichloropropene	mg/kg	0.5		<0.5	
cis-1,4-Dichloro-2-butene	mg/kg	0.5		<0.5	
Dibromomethane	mg/kg	0.5		<0.5	
Dichlorodifluoromethane	mg/kg	5		<5.0	
Hexachlorobutadiene	mg/kg	0.5		<0.5	
Iodomethane	mg/kg	0.5		<0.5	
Isopropylbenzene	mg/kg	0.5		<0.5	
n-butylbenzene	mg/kg	0.5		<0.5	
n-propylbenzene	mg/kg	0.5		<0.5	
Pentachloroethane	mg/kg	0.5		<0.5	
p-isopropyltoluene	mg/kg	0.5		<0.5	
sec-butylbenzene	mg/kg	0.5		<0.5	
Styrene	mg/kg	0.5		<0.5	
Trichloroethene	mg/kg	0.5		<0.5	
tert-butylbenzene	mg/kg	0.5		<0.5	
Tetrachloroethene	mg/kg	0.5		<0.5	
trans-1,2-dichloroethene	mg/kg	0.5		<0.5	
trans-1,3-dichloropropene	mg/kg	0.5		<0.5	
trans-1,4-Dichloro-2-butene	mg/kg	0.5		<0.5	
Trichlorofluoromethane	mg/kg	5		<5.0	
Vinyl acetate	mg/kg	5		<5.0	
Vinyl chloride	mg/kg	5		<5.0	

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.  
 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL)  
 \*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row head



SDG	ES1406140	ES1406140	RPD	ES1406141	ES1406141	RPD	ES1406277	ES1406277	RPD	ES1406278	ES1406278	RPD	ES1406140	Interlab_D	RPD			
Field_ID	VG_MW02_1.0	D01_190314_GP		VO_MW08_0.5	D01_190314_DB		VU_MW14_3.3-3.7	D01_21.3.14_WG		VL_MW02_1.0	D01_200314_GP		VS_SB01_0.5	T01-190314-GP				
Sampled_Date-Time	19/03/2014 15:45	19/03/2014 15:45		19/03/2014 15:00	19/03/2014 15:00		21/03/2014 8:40	21/03/2014 8:40		20/03/2014 9:40	20/03/2014 9:40		19/03/2014 9:15	19/03/2014 9:15				
<b>Method</b>	<b>ChemName</b>	<b>Units</b>	<b>EQL</b>															
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	12.5	10.8	15	28.8	26.4	9	12.1	12.2	1	8.8	10.1	14	11.0	11.0	0
PAH/Phen	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.05	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0			
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	<0.5	82
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0			
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.0	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
ols (SIM)																		
pH (1:5)	pH (Lab)	pH_Units	0.1				3.6	3.8	5									
Total Mercury	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals																		
Arsenic	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<4.0	0
Barium	Barium	mg/kg	10				<10.0	<10.0	0									
Beryllium	Beryllium	mg/kg	1				<1.0	<1.0	0									
Boron	Boron	mg/kg	50				<50.0	<50.0	0									
Cadmium	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.4	0
Chromium (III+VI)	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	7.0	7.0	0	23.0	17.0	30	3.0	5.0	50	4.0	6.0	40	6.0	7.0	15
Cobalt	Cobalt	mg/kg	2				<2.0	<2.0	0									
Copper	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	7.0	7.0	0
Lead	Lead	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	9.0	7.0	25	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	5.0	0
Manganese	Manganese	mg/kg	5				5.0	<5.0	0									
Molybdenum	Molybdenum	mg/kg	2				<2.0	<2.0	0									
Nickel	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	2.0	0	<2.0	<2.0	0	3.0	6.0	67
Selenium	Selenium	mg/kg	5				<5.0	<5.0	0									
Thallium	Thallium	mg/kg	5				<5.0	<5.0	0									
Vanadium	Vanadium	mg/kg	5				69.0	52.0	28									
Zinc	Zinc	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	19.0	17.0	11	48.0	51.0	6	<5.0	<5.0	0	12.0	12.0	0
TPH - Sem	TPH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TPH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TPH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TPH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	TPH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TPH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TPH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TPH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TPH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
TPH Volatile Fraction																		
Benzene	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
Ethylbenzene	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0
Toluene	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5								

SDG	ES1406140	ES1406140	ES1406141	ES1406141	ES1406277	ES1406277	ES1406278	ES1406278	ES1406140	Interlab_D				
Field_ID	VG_MW02_1.0	D01_190314_GP	RPD	VO_MW08_0.5	D01_190314_DB	RPD	VU_MW14_3.3-3.7	D01_21.3.14_WG	RPD	VS_SB01_0.5	T01-190314-GP	RPD		
Sampled_Date-Time	19/03/2014 15:45	19/03/2014 15:45		19/03/2014 15:00	19/03/2014 15:00		21/03/2014 8:40	21/03/2014 8:40		20/03/2014 9:40	20/03/2014 9:40			
1,2,4-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,2-dibromo-3-chloropropane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,2-dibromoethane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,2-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,2-dichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,3-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,3-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
1,4-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
2,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
2-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
4-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Bromobenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Bromodichloromethane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Bromoform	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Bromomethane	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0
Carbon tetrachloride	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Chlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Chlorodibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Chloroethane	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0
Chloroform	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Chloromethane	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0
cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Dibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Dichlorodifluoromethane	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0
Hexachlorobutadiene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Isopropylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
n-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
n-propylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
p-isopropyltoluene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
sec-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Styrene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Trichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
tert-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Tetrachloroethene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)										<0.5	<1.0	0
Trichlorofluoromethane	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0
Vinyl chloride	mg/kg	5 (Primary): 1 (Interlab)										<5.0	<1.0	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.  
 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )  
 \*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



Field Duplicate (SOIL)  
 Filter: SDG in('ES1406139','ES1406142','ES1405963','ES1405962','ES1405961','ES141

Table 5c\_Field Dup (Soil)  
 Vales Point Power Station - Stage 2 ESA  
 Project Symphony - 0237747

Method Type	ChemName	Units	EQL	ES1405737 VS_MW05_0.6 14/03/2014 17:00	ES1405737 DUP_14032014_KB 14/03/2014 17:00	RPD	ES1405879 VL_MW01_1.0 17/03/2014 11:55	ES1405879 D01_170314_GP 17/03/2014 11:55	RPD	ES1405881 VP_SB10_0.5 17/03/2014 15:00	ES1405881 D01_170314_RP 17/03/2014 15:00	RPD	ES1405962 VS_MW05_3.5 18/03/2014 15:00	ES1405962 D01_180314_DB 18/03/2014 15:00	RPD	ES1405963 VU_MW10_1.0 18/03/2014 10:50	ES1405963 D01_180314_GP 18/03/2014 10:50	RPD	ES1405879 VU_MW01_0.5 17/03/2014 15:55	Interlab_D T01-170314-GP 17/03/2014 15:55	RPD	ES1405881 VP_SB10_0.5 17/03/2014 15:00	Interlab_D T01_170314_RP 17/03/2014 15:00	RPD
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	26.1	25.2	4	15.2	14.9	2	27.9	31.7	13	20.0	20.9	4	20.8	21.3	2	15.2	14.0	8	27.9	29.3	5
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(e)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	PAHs (Sum of total)	mg/kg	0.5 (Primary): 0 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
is (SIM)																								
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0							<0.1	<0.1	0									
ated Biphenyls (PCB)																								
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
ry by FIMS																								
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	8.0	10.0	22	<5.0	<5.0	0	6.0	6.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	6.0	6.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	6.0	8.0	29	18.0	20.0	11	7.0	6.0	15	9.0	10.0	11	29.0	15.0	64	8.0	7.0	13	7.0	6.0	15
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	6.0	8.0	29	<5.0	5.0	0	<5.0	<5.0	0	5.0	5.0	0	6.0	8.0	29
	Lead	mg/kg	5 (Primary): 1 (Interlab)	5.0	6.0	18	5.0	5.0	0	5.0	6.0	18	<5.0	<5.0	0	11.0	7.0	44	<5.0	6.0	18	5.0	6.0	18
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	2.0	0	4.0	5.0	22	3.0	3.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	3.0	3.0	0
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	6.0	6.0	0	<5.0	<5.0	0	10.0	11.0	10	<5.0	<5.0	0	<5.0	<5.0	0	43.0	4.0	166	10.0	12.0	18
by ICP-AES																								
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100	<1																				



Field Duplicates (SOIL)

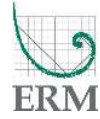
Filter: SDG in('ES1406139','ES1406142','ES1405963','ES1405962','ES1405961','ES140

SDG	ES1405737	ES1405737	ES1405879	ES1405879	ES1405881	ES1405881	ES1405962	ES1405962	ES1405963	ES1405963	ES1405879	Interlab_D	ES1405881	Interlab_D								
Field_ID	VS_MW05_0.6	DUP_14032014_KB	RPD	VL_MW01_1.0	D01_170314_GP	RPD	VP_SB10_0.5	D01_170314_RP	RPD	VS_MW05_3.5	D01_180314_DB	RPD	VU_MW10_1.0	D01_180314_GP	RPD	VU_MW01_0.5	T01-170314-GP	RPD	VP_SB10_0.5	T01_170314_RP	RPD	
Sampled_Date-Time	14/03/2014 17:00	14/03/2014 17:00		17/03/2014 11:55	17/03/2014 11:55		17/03/2014 15:00	17/03/2014 15:00		18/03/2014 15:00	18/03/2014 15:00		18/03/2014 10:50	18/03/2014 10:50		17/03/2014 15:55	17/03/2014 15:55		17/03/2014 15:00	17/03/2014 15:00		
Bromobenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Bromoform	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Bromomethane	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Naphthalene	mg/kg	5								<5.0	<5.0	0										
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Chloroethane	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
Chloroform	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Chloromethane	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
cis-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
cis-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Dibromomethane	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Dichlorodifluoromethane	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Iodomethane	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
n-butylbenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
n-propylbenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
p-isopropyltoluene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
sec-butylbenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Styrene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Trichloroethene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
tert-butylbenzene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0					<0.5	<0.5	0	<0.5	<0.5	0					<0.5	<0.5	0
Trichlorofluoromethane	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
Vinyl acetate	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0
Vinyl chloride	mg/kg	5	<5.0	<5.0	0					<5.0	<5.0	0	<5.0	<5.0	0					<5.0	<5.0	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

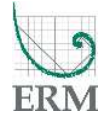
\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



SDG	ES1405525	ES1405525	ES1405525	ES1405525	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405660	ES1405675	ES1405675	ES1405675	ES1405675	ES1405675		
Field_ID	VC_MW02_0.5	D01_120314_GP	VN_SB04_3.0	D01_120314_SB	VJ_MW03_0.5	D01_130314_GP	VD_MW03_2.0	D01_130314_CM	VK_SB01_3.5	D01_130314_HC	VK_MW01_3.5	D02_130314_HC									
Sampled Date-Time	12/03/2014 8:40	12/03/2014 8:40	12/03/2014 15:00	12/03/2014 15:00	13/03/2014 11:45	13/03/2014 11:45	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00									
Method Type	ChemName	Units	EQL																		
Cations - soluble by ICP-AES	Calcium (Filtered)	mg/kg	10																		
	Magnesium (Filtered)	mg/kg	10																		
	Potassium (Filtered)	mg/kg	10																		
	Sodium (Filtered)	mg/kg	10																		
Chloride Soluble By Discrete Analyser	Chloride	mg/kg	10																		
Major Anions - Soluble	Sulphate (Filtered)	mg/kg	10																		
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	18.1	13.3	31	17.6	12.7	32	11.9	12.6	6	12.6	18.6	38	10.0	8.0	22	16.2	15.1	7
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenzo(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0															
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0
	Barium	mg/kg	10 (Primary): 1 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	20.0	20.0	0									
	Beryllium	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0									
	Boron	mg/kg	50 (Primary): 3 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0									
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	11.0	4.0	93	4.0	6.0	40	30.0	12.0	86	7.0	6.0	15	3.0	3.0	0	12.0	12.0	0
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0									
	Copper	mg/kg	5 (Primary): 1 (Interlab)	24.0	8.0	100	<5.0	<5.0	0	10.0	10.0	0	<5.0	<5.0	0	<5.0	<5.0	0	22.0	26.0	17
	Lead	mg/kg	5 (Primary): 1 (Interlab)	8.0	<5.0	46	<5.0	<5.0	0	11.0	7.0	44	<5.0	5.0	0	<5.0	<5.0	0	7.0	8.0	13
	Manganese	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	73.0	60.0	20									
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0									
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	21.0	4.0	136	<2.0	<2.0	0	4.0	4.0	0	<2.0	<2.0	0	<2.0	<2.0	0	20.0	22.0	10
	Selenium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0									
	Thallium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0									
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	9.0	23.0	88	70.0	32.0	75									
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	51.0	11.0	129	<5.0	<5.0													





SDG	ES1405525	ES1405525	ES1405525	ES1405525	ES1405660	ES1405660	ES1405660	ES1405660	ES1405675	ES1405675	ES1405675	ES1405675	ES1405675
Field_ID	VC_MW02_0.5	D01_120314_GP	VN_SB04_3.0	D01_120314_SB	VJ_MW03_0.5	D01_130314_GP	VD_MW03_2.0	D01_130314_CM	VK_SB01_3.5	D01_130314_HC	VK_MW01_3.5	D02_130314_HC	
Sampled Date-Time	12/03/2014 8:40	12/03/2014 8:40	12/03/2014 15:00	12/03/2014 15:00	13/03/2014 11:45	13/03/2014 11:45	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	
	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD
Volatiles Organic Compounds	1,1,1,2-tetrachloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1,1-trichloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1,2,2-tetrachloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1,2-trichloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1-dichloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1-dichloroethene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,1-dichloropropene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2,3-trichlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2,3-trichloropropane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2,4-trichlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2-dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2-dibromoethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2-dichloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,2-dichloropropane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,3,5-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,3-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,3-dichloropropane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	1,4-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2,2-dichloropropane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	2-chlorotoluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Methyl Ethyl Ketone	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	2-hexanone (MBK)	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	4-chlorotoluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	4-Methyl-2-pentanone	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Bromobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Bromoforn	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Bromomethane	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Carbon disulfide	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Naphthalene	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Chlorobenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Chloroethane	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Chloroform	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Chloromethane	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	cis-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	cis-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Dibromomethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Dichlorodifluoromethane	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Iodomethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	n-butylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	n-propylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Pentachloroethane	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	p-isopropyltoluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	sec-butylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Styrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Trichloroethene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	tert-butylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Trichlorofluoromethane	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Vinyl acetate	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0
	Vinyl chloride	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Method_Type	ChemName	Units	EQL	SDG	ES1405739	ES1405739	ES1405739	ES1405739	ES1405660	Interlab_D			
				Field_ID	VI_MW01_2.0	D01_140314NO	RPD	VB_MW01_2.0	D02_140314NO	RPD	VJ_MW04_0.2	T01_130314_GP	RPD
				Sampled_Date-Time	14/03/2014 15:00	14/03/2014 15:00	14/03/2014 15:00	14/03/2014 15:00	13/03/2014 9:35	13/03/2014 9:35			
Cations - soluble by ICP-AES	Calcium (Filtered)	mg/kg	10		<10.0	<10.0	0						
	Magnesium (Filtered)	mg/kg	10		<10.0	<10.0	0						
	Potassium (Filtered)	mg/kg	10		<10.0	<10.0	0						
	Sodium (Filtered)	mg/kg	10		40.0	50.0	22						
Chloride Soluble By Discrete Analyser	Chloride	mg/kg	10		80.0	80.0	0						
Major Anions - Soluble	Sulphate (Filtered)	mg/kg	10		20.0	10.0	67						
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)		16.5	18.0	9	19.0	16.0	17	9.0	10.0	11
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2,4,6-trichlorophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2,4-dichlorophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2,4-dimethylphenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2,6-dichlorophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2-chlorophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2-methylphenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	2-nitrophenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	3-&4-methylphenol	mg/kg	1		<1.0	<1.0	0	<1.0	<1.0	0			
	4-chloro-3-methylphenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benzo(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benzo(a)pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.05	0
	Benzo(b)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Benzo(k)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5		0.6	0.6	0	0.6	0.6	0			
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5		1.2	1.2	0	1.2	1.2	0	1.2	<0.5	82
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Pentachlorophenol	mg/kg	2		<2.0	<2.0	0	<2.0	<2.0	0			
	PAHs (Sum of total)	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.0	0
	Phenol	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	mg/kg	0.1					<0.1	<0.1	0			
Total Mercury by FIMS	Mercury	mg/kg	0.1		<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)		<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<4.0	0
	Barium	mg/kg	10 (Primary): 1 (Interlab)								<10.0	3.0	0
	Beryllium	mg/kg	1								<1.0	<1.0	0
	Boron	mg/kg	50 (Primary): 3 (Interlab)								<50.0	<3.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)		<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.4	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)		9.0	8.0	12	7.0	7.0	0	6.0	5.0	18
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)								<2.0	<1.0	0
	Copper	mg/kg	5 (Primary): 1 (Interlab)		14.0	13.0	7	17.0	14.0	19	<5.0	<1.0	0
	Lead	mg/kg	5 (Primary): 1 (Interlab)		6.0	6.0	0	5.0	<5.0	0	<5.0	6.0	18
	Manganese	mg/kg	5 (Primary): 1 (Interlab)								<5.0	3.0	0
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)								<2.0	<1.0	0
	Nickel	mg/kg	2 (Primary): 1 (Interlab)		8.0	6.0	29	5.0	6.0	18	<2.0	<1.0	0
	Selenium	mg/kg	5 (Primary): 2 (Interlab)								<5.0	<2.0	0
	Thallium	mg/kg	5 (Primary): 2 (Interlab)								<5.0	<2.0	0
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)								23.0	18.0	24
	Zinc	mg/kg	5 (Primary): 1 (Interlab)		26.0	22.0	17	22.0	22.0	0	<5.0	3.0	0
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50		<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100		<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100		<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C36 Fraction	mg/kg	50		<50.0	<50.0	0	<50.0	<50.0	0			
	TRH >C10-C16 Fraction	mg/kg	50		<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50		<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C16-C34 Fraction	mg/kg	100		<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C34-C40 Fraction	mg/kg	100		<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C40 Fraction	mg/kg	50		<50.0	<50.0	0	<50.0	<50.0	0			
TPH Volatiles/BTEX	Benzene	mg/kg	0.2		<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0
	Toluene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)		<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0
	Total BTEX	mg/kg	0.2		<0.2	<0.2	0	<0.2	<0.2	0			
	TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)		<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0
	Xylene (m & p)	mg/kg	0.5 (Primary): 2 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<2.0	0
	TRH >C6-C10 less BTEX (F1)	mg/kg	10 (Primary): 25 (Interlab)		<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0
	Xylene (o)	mg/kg	0.5 (Primary): 1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0
	Xylene Total	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0			
	Naphthalene	mg/kg	1 (Primary): 0.1 (Interlab)		<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.1	0



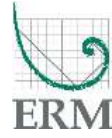
SDG	ES1405739		ES1405739		ES1405739		ES1405739		ES1405660		Interlab_D	
	Field_ID	Sampled_Date-Time	Field_ID	Sampled_Date-Time	Field_ID	Sampled_Date-Time	Field_ID	Sampled_Date-Time	Field_ID	Sampled_Date-Time	Field_ID	Sampled_Date-Time
	V1_MW01_2.0	14/03/2014 15:00	D01_140314NO	14/03/2014 15:00	VB_MW01_2.0	14/03/2014 15:00	D02_140314NO	14/03/2014 15:00	VJ_MW04_0.2	13/03/2014 9:35	T01_130314_GP	13/03/2014 9:35
Volatile Organic Compounds	1,1,1,2-tetrachloroethane	mg/kg	0.5									
	1,1,1-trichloroethane	mg/kg	0.5									
	1,1,2,2-tetrachloroethane	mg/kg	0.5									
	1,1,2-trichloroethane	mg/kg	0.5									
	1,1-dichloroethane	mg/kg	0.5									
	1,1-dichloroethene	mg/kg	0.5									
	1,1-dichloropropene	mg/kg	0.5									
	1,2,3-trichlorobenzene	mg/kg	0.5									
	1,2,3-trichloropropane	mg/kg	0.5									
	1,2,4-trichlorobenzene	mg/kg	0.5									
	1,2,4-trimethylbenzene	mg/kg	0.5									
	1,2-dibromo-3-chloropropane	mg/kg	0.5									
	1,2-dibromoethane	mg/kg	0.5									
	1,2-dichlorobenzene	mg/kg	0.5									
	1,2-dichloroethane	mg/kg	0.5									
	1,2-dichloropropane	mg/kg	0.5									
	1,3,5-trimethylbenzene	mg/kg	0.5									
	1,3-dichlorobenzene	mg/kg	0.5									
	1,3-dichloropropane	mg/kg	0.5									
	1,4-dichlorobenzene	mg/kg	0.5									
	2,2-dichloropropane	mg/kg	0.5									
	2-chlorotoluene	mg/kg	0.5									
	Methyl Ethyl Ketone	mg/kg	5									
	2-hexanone (MBK)	mg/kg	5									
	4-chlorotoluene	mg/kg	0.5									
	4-Methyl-2-pentanone	mg/kg	5									
	Bromobenzene	mg/kg	0.5									
	Bromodichloromethane	mg/kg	0.5									
	Bromoform	mg/kg	0.5									
	Bromomethane	mg/kg	5									
	Carbon disulfide	mg/kg	0.5									
	Carbon tetrachloride	mg/kg	0.5									
	Naphthalene	mg/kg	5									
	Chlorobenzene	mg/kg	0.5									
	Chlorodibromomethane	mg/kg	0.5									
	Chloroethane	mg/kg	5									
	Chloroform	mg/kg	0.5									
	Chloromethane	mg/kg	5									
	cis-1,2-dichloroethene	mg/kg	0.5									
	cis-1,3-dichloropropene	mg/kg	0.5									
	cis-1,4-Dichloro-2-butene	mg/kg	0.5									
	Dibromomethane	mg/kg	0.5									
	Dichlorodifluoromethane	mg/kg	5									
	Hexachlorobutadiene	mg/kg	0.5									
	Iodomethane	mg/kg	0.5									
	Isopropylbenzene	mg/kg	0.5									
	n-butylbenzene	mg/kg	0.5									
	n-propylbenzene	mg/kg	0.5									
	Pentachloroethane	mg/kg	0.5									
	p-isopropyltoluene	mg/kg	0.5									
	sec-butylbenzene	mg/kg	0.5									
	Styrene	mg/kg	0.5									
	Trichloroethene	mg/kg	0.5									
	tert-butylbenzene	mg/kg	0.5									
	Tetrachloroethene	mg/kg	0.5									
	trans-1,2-dichloroethene	mg/kg	0.5									
	trans-1,3-dichloropropene	mg/kg	0.5									
	trans-1,4-Dichloro-2-butene	mg/kg	0.5									
	Trichlorofluoromethane	mg/kg	5									
	Vinyl acetate	mg/kg	5									
	Vinyl chloride	mg/kg	5									

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.  
 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )  
 \*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header r



SDG	ES1405226	ES1405226	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227
Field_ID	VN_MW02_0.5	D01_100314_DB	VA_MW04_1.0	D01_100314_GP	VU_MW16_0.5	D01_100314_CM	VU_MW16_0.5	T01_100314_CM	VF_MW02_0.1	T01_100314_GP	Interlab_D	Interlab_D	Interlab_D	Interlab_D	Interlab_D	Interlab_D	Interlab_D
Sampled_Date-Time	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 13:40	10/03/2014 13:40	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00

Method_Type	ChemName	Units	EQL															
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	17.0	17.8	5	19.2	17.0	12	10.9	11.4	4	10.9	7.6	36	7.9	11.0	33
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0					
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.05	0	<0.5	<0.05	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6					
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	<0.5	82	1.2	<0.5	82
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	0.1	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	0.1	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0					
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.0	0	<0.5	0.2	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<4.0	0	<5.0	4.0	0
	Barium	mg/kg	10	20.0	20.0	0												
	Beryllium	mg/kg	1	<1.0	<1.0	0												
	Boron	mg/kg	50	<50.0	<50.0	0												
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.4	0	<1.0	0.6	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	20.0	19.0	5	3.0	5.0	50	7.0	6.0	15	7.0	5.0	33	22.0	23.0	4
	Cobalt	mg/kg	2	<2.0	<2.0	0												
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	6.0	18	<5.0	<5.0	0	<5.0	<1.0	0	39.0	47.0	19
	Lead	mg/kg	5 (Primary): 1 (Interlab)	7.0	8.0	13	5.0	6.0	18	<5.0	<5.0	0	<5.0	2.0	0	52.0	50.0	4
	Manganese	mg/kg	5	<5.0	<5.0	0												
	Molybdenum	mg/kg	2	<2.0	<2.0	0												
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	19.0	18.0	5
	Selenium	mg/kg	5	<5.0	<5.0	0												
	Thallium	mg/kg	5	<5.0	<5.0	0												
	Vanadium	mg/kg	5	51.0	46.0	10												
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	9.0	57	<5.0	<5.0	0	<5.0	3.0	0	458.0	460.0	0
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0					
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0					
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0												



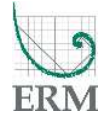
SDG	ES1405226	ES1405226	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227	ES1405227
Field ID	VN_MW02_0.5	D01_100314_DB	VA_MW04_1.0	D01_100314_GP	VU_MW16_0.5	D01_100314_CM	VU_MW16_0.5	D01_100314_CM	VU_MW16_0.5	T01_100314_CM	VF_MW02_0.1	T01_100314_GP	RPD	RPD	RPD	RPD	RPD
Sampled Date-Time	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 15:00	10/03/2014 13:40	10/03/2014 13:40					
TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
Xylene (m & p)	mg/kg	0.5 (Primary): 2 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<2.0	0	<0.5	<2.0	0
TRH >C6-C10 less BTEX (F1)	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
Xylene (o)	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0
Xylene Total	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5					
Naphthalene	mg/kg	1 (Primary): 0.1 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<0.1	0
Volatile Organic Compounds																	
1,1,1,2-tetrachloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1,1-trichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1,2,2-tetrachloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1,2-trichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1-dichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,1-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2,3-trichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2,3-trichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2,4-trichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2,4-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2-dibromo-3-chloropropane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2-dibromoethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2-dichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,3-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,3-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
1,4-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
2,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
2-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Methyl Ethyl Ketone	mg/kg	5				<5.0	<5.0	0									
2-hexanone (MBK)	mg/kg	5				<5.0	<5.0	0									
4-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
4-Methyl-2-pentanone	mg/kg	5				<5.0	<5.0	0									
Bromobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Bromodichloromethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Bromoform	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Bromomethane	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0
Carbon disulfide	mg/kg	0.5				<0.5	<0.5	0									
Carbon tetrachloride	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Chlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Chlorodibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Chloroethane	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0
Chloroform	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Chloromethane	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0
cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
cis-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	0									
Dibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Dichlorodifluoromethane	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0
Hexachlorobutadiene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Iodomethane	mg/kg	0.5				<0.5	<0.5	0									
Isopropylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
n-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
n-propylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Pentachloroethane	mg/kg	0.5				<0.5	<0.5	0									
p-isopropyltoluene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
sec-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Styrene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Trichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
tert-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
Tetrachloroethene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)				<0.5	<0.5	0							<0.5	<1.0	0
trans-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	0									
Trichlorofluoromethane	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0
Vinyl acetate	mg/kg	5				<5.0	<5.0	0									
Vinyl chloride	mg/kg	5 (Primary): 1 (Interlab)				<5.0	<5.0	0							<5.0	<1.0	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL))

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory





SDG	ES1404400	ES1404400	ES1404400	ES1404400	ES1404580	ES1404580	ES1404580	ES1404580	ES1404580	ES1404881	ES1404881	ES1404881	ES1404881								
Field_ID	VP_SB04_0.5	DO1_270214_RP	RPD	VO_MW09_2.0	DO1_270214_CM	RPD	VO_MW16_0.5	DO1_030314_RP	RPD	D02_030314_RP	D02_030314_RP	RPD	VU_MW17_6.5	DO1_050314_SB	RPD	VP_SB02_0.5	DO1_050314_RP	RPD			
Sampled_Date-Time	27/02/2014 12:00	27/02/2014 12:00		27/02/2014 15:00	27/02/2014 15:00		3/03/2014 15:00	3/03/2014 15:00		3/03/2014 15:00	3/03/2014 15:00		5/03/2014 15:00	5/03/2014 15:00		5/03/2014 8:30	5/03/2014 8:30				
Method_Type	ChemName	Units	EQL																		
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	23.3	21.5	8	9.7	9.5	2	15.5	19.5	23	19.6	19.6	0	15.5	14.3	8	21.4	21.3	0
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	1.2	1.0	18
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.7	0.7	0
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.3	1.3	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	1.1	1.0	10
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	1.2	0.9	29
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	2.7	2.7	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	5.5	5.7	4
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	2.0	1.9	5
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	13.7	13.8	1
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Mercury (SIM)	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	6.0	<5.0	18	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0
	Barium	mg/kg	10 (Primary): 1 (Interlab)				<10.0	<10.0	0	<10.0	<10.0	0									
	Beryllium	mg/kg	1				<1.0	<1.0	0	<1.0	<1.0	0									
	Boron	mg/kg	50				<50.0	<50.0	0	<50.0	<50.0	0									
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	2.0	3.0	40	2.0	2.0	0	20.0	4.0	133	4.0	4.0	0	5.0	4.0	22	5.0	4.0	22
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)				2.0	2.0	0	<2.0	<2.0	0									
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	6.0	18	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	7.0	7.0	0	13.0	11.0	17
	Lead	mg/kg	5 (Primary): 1 (Interlab)	6.0	10.0	50	6.0	6.0	0	8.0	<5.0	46	6.0	6.0	0	8.0	8.0	0	19.0	16.0	17
	Manganese	mg/kg	5 (Primary): 1 (Interlab)				51.0	52.0	2	<5.0	<5.0	0									
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	3.0	3.0	0	<2.0	<2.0	0	<2.0	<2.0	0	8.0	8.0	0	<2.0	<2.0	0
	Selenium	mg/kg	5				<5.0	<5.0	0	<5.0	<5.0	0									
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)				10.0	8.0	22	54.0	19.0	96									
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	9.0	14.0	43	27.0	26.0	4	<5.0	<5.0	0	<5.0	<5.0	0	39.0	35.0	11	86.0	79.0	8
Total Metals by ICP-AES																					
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	80.0	80.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	740.0	700.0	6
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	340.0	300.0	13
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	1160.0	1080.0	7
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50														

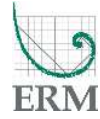


SDG	ES1404400	ES1404400	RPD	ES1404400	ES1404400	RPD	ES1404580	ES1404580	RPD	ES1404580	ES1404580	RPD	ES1404881	ES1404881	RPD	ES1404881	ES1404881	RPD
Field_ID	VP_SB04_0.5	DO1_270214_RP		VO_MW09_2.0	DO1_270214_CM		VO_MW16_0.5	DO1_030314_RP		D02_030314_RP	D02_030314_RP		VU_MW17_6.5	DO1_050314_SB		VP_SB02_0.5	DO1_050314_RP	
Sampled_Date-Time	27/02/2014 12:00	27/02/2014 12:00		27/02/2014 15:00	27/02/2014 15:00		3/03/2014 15:00	3/03/2014 15:00		3/03/2014 15:00	3/03/2014 15:00		5/03/2014 15:00	5/03/2014 15:00		5/03/2014 8:30	5/03/2014 8:30	
1,2-dichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
1,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
1,3-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
1,3-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
1,4-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
2,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
2-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Methyl Ethyl Ketone	mg/kg	5	<5.0	<5.0	0											<5.0	<5.0	0
2-hexanone (MBK)	mg/kg	5	<5.0	<5.0	0											<5.0	<5.0	0
4-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
4-Methyl-2-pentanone	mg/kg	5	<5.0	<5.0	0											<5.0	<5.0	0
Bromobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Bromodichloromethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Bromoform	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Bromomethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	0											<0.5	<0.5	0
Carbon tetrachloride	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Naphthalene	mg/kg	5 (Primary): 1 (Interlab)														<5.0	<5.0	0
Chlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Chlorodibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Chloroethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0
Chloroform	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Chloromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0
cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0											<0.5	<0.5	0
Dibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Dichlorodifluoromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0
Hexachlorobutadiene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Iodomethane	mg/kg	0.5	<0.5	<0.5	0											<0.5	<0.5	0
Isopropylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
n-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
n-propylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	0											<0.5	<0.5	0
p-isopropyltoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
sec-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Styrene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Trichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
tert-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
Tetrachloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0											<0.5	<0.5	0
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0											<0.5	<0.5	0
Trichlorofluoromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0
Vinyl acetate	mg/kg	5	<5.0	<5.0	0											<5.0	<5.0	0
Vinyl chloride	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0											<5.0	<5.0	0

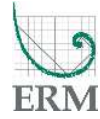
\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



Method Type	ChemName	Units	EQL	ES1405121 VO_MW13_3.7 7/03/2014 15:10	ES1405121 D01_070314_GP 7/03/2014 15:10	ES1405121 VN_MW08_5.0 7/03/2014 15:00	ES1405121 D01_070314_SB 7/03/2014 15:00	ES1405121 VO_MW13_0.5 7/03/2014 15:00	ES1405121 D01_070314_RP 7/03/2014 15:00	ES1404580 VU_MW18_0.5 3/03/2014 15:00	Interlab_D T01_030314_RP 3/03/2014 15:00	ES1404881 VP_SB02_0.5 5/03/2014 8:30	Interlab_D T01_050314_RP 5/03/2014 8:30	ES1405121 VN_MW08_5.0 7/03/2014 15:00	Interlab_D T01_070314_SB 7/03/2014 15:00						
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	11.8	11.7	1	13.6	12.8	6	10.6	9.6	10	17.4	18.0	3	21.4	13.0	49	13.6	13.0	5
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0		<1.0	<1.0	
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	Acenaphthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Acenaphthylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Benzo(a)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>1.2</b>	<b>&lt;0.1</b>	<b>169</b>	<0.5	<0.1	0
	Benzo(a) pyrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.05	0	<0.5	<0.05	0	<0.5	<0.05	0
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	Benzo(g,h,i)perylene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0				0.7					
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	<b>1.2</b>	<b>&lt;0.5</b>	<b>82</b>	<b>1.3</b>	<b>&lt;0.5</b>	<b>89</b>	<b>1.2</b>	<b>&lt;0.5</b>	<b>82</b>
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>1.1</b>	<b>&lt;0.1</b>	<b>167</b>	<0.5	<0.1	0
	Chrysene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>1.2</b>	<b>&lt;0.1</b>	<b>169</b>	<0.5	<0.1	0
	Dibenz(a,h)anthracene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Fluoranthene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>2.7</b>	<b>&lt;0.1</b>	<b>186</b>	<0.5	<0.1	0
	Fluorene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
	Phenanthrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>5.5</b>	<b>&lt;0.1</b>	<b>193</b>	<0.5	<0.1	0
	Pyrene	mg/kg	0.5 (Primary): 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<b>2.0</b>	<b>&lt;0.1</b>	<b>181</b>	<0.5	<0.1	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0		<2.0	<2.0	
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.0	0	<b>13.7</b>	<b>0.0</b>	<b>200</b>	<0.5	0.0	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5		<0.5	<0.5	
Mercury (SIM)	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<4.0	0	<5.0	7.0	33	<5.0	<4.0	0
	Barium	mg/kg	10 (Primary): 1 (Interlab)	<10.0	<10.0	0	10.0	10.0	0	10.0	10.0	0							10.0	9.0	11
	Beryllium	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0							<1.0	<1.0	0
	Boron	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0							<50.0	<50.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.4	0	<1.0	<0.4	0	<1.0	<0.4	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	8.0	5.0	46	6.0	5.0	18	2.0	3.0	40	4.0	5.0	22	<b>5.0</b>	<b>14.0</b>	<b>95</b>	6.0	4.0	40
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0		<2.0	<1.0	0
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<1.0	0	<b>13.0</b>	<b>35.0</b>	<b>92</b>	<5.0	<1.0	0
	Lead	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	6.0	5.0	18	<b>19.0</b>	<b>44.0</b>	<b>79</b>	<5.0	2.0	0
	Manganese	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0							<5.0	1.0	0
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	<b>&lt;2.0</b>	<b>13.0</b>	<b>147</b>	<2.0	<1.0	0
	Selenium	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0							<5.0	<1.0	0
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)	15.0	10.0	40	11.0	10.0	10	<b>11.0</b>	<b>22.0</b>	<b>67</b>							<b>11.0</b>	<b>6.0</b>	<b>59</b>
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	24.0	20.0	18	6.0	5.0	18	7.0	6.0	15	<5.0	3.0	0	86.0	77.0	11	<b>6.0</b>	<b>&lt;1.0</b>	<b>143</b>
Total Metals by ICP-AES																					
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	80.0	<50.0	46	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<b>740.0</b>	<b>&lt;100.0</b>	<b>152</b>	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<b>340.0</b>	<b>&lt;100.0</b>	<b>109</b>	<100.0	<100.0	0
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	1160.0			<50.0	<50.0	



SDG	ES1405121	ES1405121	ES1405121	ES1405121	ES1405121	ES1405121	ES1405121	ES1404580	Interlab_D	ES1404881	Interlab_D	ES1405121	Interlab_D						
Field_ID	VO_MW13_3.7	D01_070314_GP	RPD	VN_MW08_5.0	D01_070314_SB	RPD	VO_MW13_0.5	D01_070314_RP	RPD	VU_MW18_0.5	T01_030314_RP	RPD	VP_SB02_0.5	T01_050314_RP	RPD	VN_MW08_5.0	T01_070314_SB	RPD	
Sampled_Date-Time	7/03/2014 15:10	7/03/2014 15:10		7/03/2014 15:00	7/03/2014 15:00		7/03/2014 15:00	7/03/2014 15:00		3/03/2014 15:00	3/03/2014 15:00		5/03/2014 8:30	5/03/2014 8:30		7/03/2014 15:00	7/03/2014 15:00		
1,2-dichloroethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
1,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
1,3-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
1,3-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
1,4-dichlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
2,2-dichloropropane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
2-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Methyl Ethyl Ketone	mg/kg	5	<5.0	<5.0	0								<5.0						
2-hexanone (MBK)	mg/kg	5	<5.0	<5.0	0								<5.0						
4-chlorotoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
4-Methyl-2-pentanone	mg/kg	5	<5.0	<5.0	0								<5.0						
Bromobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Bromodichloromethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Bromoform	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Bromomethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	0								<0.5						
Carbon tetrachloride	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Naphthalene	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
Chlorobenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Chlorodibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Chloroethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
Chloroform	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Chloromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0								<0.5	<1.0	0				
Dibromomethane	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Dichlorodifluoromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
Hexachlorobutadiene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Iodomethane	mg/kg	0.5	<0.5	<0.5	0								<0.5						
Isopropylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
n-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
n-propylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	0								<0.5						
p-isopropyltoluene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
sec-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Styrene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Trichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
tert-butylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
Tetrachloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0								<0.5	<1.0	0				
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	0								<0.5	<1.0	0				
Trichlorofluoromethane	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				
Vinyl acetate	mg/kg	5	<5.0	<5.0	0								<5.0						
Vinyl chloride	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0								<5.0	<1.0	0				

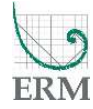
\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> ;

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the



Method Type	ChemName	Units	EQL	ES1406495 Field_ID Sampled_Date-Time	ES1406495 D01_240314_SO 24/03/2014 12:31	ES1406495 D01_240314_SO 24/03/2014 12:31	ES1406590 Field_ID Sampled_Date-Time	ES1406590 VN_MW02_250314 25/03/2014 9:12	ES1406590 Field_ID Sampled_Date-Time	ES1406590 D01_250314_SN 25/03/2014 9:12	ES1406590 Field_ID Sampled_Date-Time	ES1406590 VA_MW02_250314 25/03/2014 15:00	ES1406590 Field_ID Sampled_Date-Time	ES1406590 D02_250314_SB 25/03/2014 15:00	ES1406590 Field_ID Sampled_Date-Time	ES1406590 VA_MW02_250314 25/03/2014 15:00	ES1406590 Field_ID Sampled_Date-Time	ES1406590 T01_250314_SB 25/03/2014 15:00	ES1406761 Field_ID Sampled_Date-Time	ES1406761 VS_MW04_260314 26/03/2014 15:00	ES1406761 Field_ID Sampled_Date-Time	ES1406761 D03_260314_SO 26/03/2014 15:00	ES1406761 Field_ID Sampled_Date-Time	ES1406761 VO_MW18_260314 26/03/2014 8:24	ES1406761 Field_ID Sampled_Date-Time	ES1406761 D01_260314_SN 26/03/2014 8:24	ES1406761 Field_ID Sampled_Date-Time	ES1406761 D01_260314_SN 26/03/2014 8:24								
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0						
Mercury by FIMS	Mercury (Filtered)	µg/l		<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0						
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	2.0	3.0	40															
	Barium (Filtered)	µg/l	1	60.0	60.0	0																														
	Beryllium (Filtered)	µg/l	1	<1.0	<1.0	0																														
	Boron (Filtered)	µg/l	50	60.0	60.0	0																														
	Cadmium (Filtered)	µg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0															
	Chromium (III+VI) (Filtered)	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0															
	Cobalt (Filtered)	µg/l	1	<1.0	<1.0	0																														
	Copper (Filtered)	µg/l	1	3.0	<1.0	100	2.0	<1.0	67	2.0	<1.0	67	2.0	<1.0	67	1.0	<1.0	0																		
	Lead (Filtered)	µg/l	1	8.0	7.0	13	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0															
	Manganese (Filtered)	µg/l	1	73.0	77.0	5																														
	Molybdenum (Filtered)	µg/l	1	<1.0	<1.0	0																														
	Nickel (Filtered)	µg/l	1	1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	2.0	2.0	0															
	Selenium (Filtered)	µg/l	10	<10.0	<10.0	0																														
	Thallium (Filtered)	µg/l	1	<1.0	<1.0	0																														
	Vanadium (Filtered)	µg/l	10	<10.0	<10.0	0																														
	Zinc (Filtered)	µg/l	5 (Primary): 1 (Interlab)				13.0	<5.0	89	19.0	9.0	71	19.0	6.0	104	29.0	20.0	37																		
Metals by ICP-MS - Suite A																																				
Dissolved Metals in Fresh Water - Suite A by ORC-I	Arsenic (Filtered)	µg/L	0.2	5.6	5.8	4																														
	Barium (Filtered)	µg/L	0.5	1590.0	1660.0	4																														
	Beryllium (Filtered)	µg/L	0.1	4.3	4.3	0																														
	Boron (Filtered)	µg/L	5	27.0	27.0	0																														
	Cadmium (Filtered)	µg/L	0.05	0.66	0.66	0																														
	Chromium (III+VI) (Filtered)	µg/L	0.2	3.3	3.2	3																														
	Cobalt (Filtered)	µg/L	0.1	22.7	23.6	4																														
	Copper (Filtered)	µg/L	0.5	44.6	44.4	0																														
	Lead (Filtered)	µg/L	0.1	20.9	20.7	1																														
	Manganese (Filtered)	µg/L	0.5	310.0	299.0	4																														
	Molybdenum (Filtered)	µg/L	0.1	<0.1	<0.1	0																														
	Nickel (Filtered)	µg/L	0.5	53.2	55.3	4																														
	Thallium (Filtered)	µg/L	0.02	0.16	0.14	13																														
	Vanadium (Filtered)	µg/L	0.2	0.5	0.5	0																														
	Zinc (Filtered)	µg/L	1	153.0	158.0	3																														
Metals in Fresh Water - Suite A by ORC-I																																				
Dissolved Metals in Fresh Water - Suite B by ORC-I	Selenium (Filtered)	µg/L	0.2	3.9	4.1	5																														
Metals in Fresh Water - Suite B by ORC-I																																				
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2,4,6-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2,4-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2,4-dimethylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2,6-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2-chlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	2-nitrophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			
	3,4-dimethylphenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0			
	4-chloro-3-methylphenol	µg/L	1	<1.0	<1.0	0	&lt																													

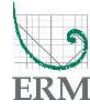


SDG	ES1406495	ES1406495	ES1406590	ES1406590	ES1406590	ES1406590	ES1406590	ES1406590	ES1406590	ES1406590	ES1406590	ES1406761	ES1406761	ES1406761	ES1406761						
Field_ID	VH_X_MW04_240314	D01_240314_SO	RPD	VN_MW02_250314	D01_250314_SN	RPD	VA_MW02_250314	D02_250314_SB	RPD	VA_MW02_250314	T01_250314_SB	RPD	VS_MW04_260314	D03_260314_SO	RPD	VO_MW18_260314	D01_260314_SN	RPD			
Sampled_Date-Time	24/03/2014 12:31	24/03/2014 12:31		25/03/2014 9:12	25/03/2014 9:12		25/03/2014 15:00	25/03/2014 15:00		25/03/2014 15:00	25/03/2014 15:00		26/03/2014 15:00	26/03/2014 15:00		26/03/2014 8:24	26/03/2014 8:24				
Perylene	µg/L	0.1																	<0.1	<0.1	0
PAHs (Sum of total)	µg/L	0.05																	<0.05	<0.05	0
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.05																	<0.05	<0.05	0
e Compounds by GCMS(SIM - Ultra-trace)																					
TPH - Semivolatile Fraction																					
TRH >C10-C14 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	
TRH >C15-C28 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
TRH >C29-C36 Fraction	µg/L	50 (Primary); 100 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	
TRH >C10-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	
TRH >C10-C16 Fraction	µg/L	100 (Primary); 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
TRH >C10-C16 less Naphthalene (F2)	µg/L	100 (Primary); 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
TRH >C16-C34 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
TRH >C34-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
TRH >C10-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	
ivolatile Fraction																					
TPH Volatiles/BTEX																					
Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
Ethylbenzene	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
Toluene	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
TRH >C6-C9 Fraction	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	
Total BTEX	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
TRH >C6-C10 Fraction	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	
Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
TRH >C6-C10 less BTEX (F1)	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	
Xylene (o)	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
Xylene Total	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
Naphthalene	µg/L	5 (Primary); 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	
les/BTEX																					
Volatile Organic Compounds																					
1,1,1,2-tetrachloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1,1-trichloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1,2,2-tetrachloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1,2-trichloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1-dichloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1-dichloroethene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,1-dichloropropene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2,3-trichlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2,3-trichloropropane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2,4-trichlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2,4-trimethylbenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2-dibromo-3-chloropropane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2-dibromoethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2-dichlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2-dichloroethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,2-dichloropropane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,3,5-trimethylbenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,3-dichlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,3-dichloropropane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
1,4-dichlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
2,2-dichloropropane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
2-chlorotoluene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Methyl Ethyl Ketone	µg/L	50								<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
2-hexanone (MBK)	µg/L	50								<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
4-chlorotoluene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
4-Methyl-2-pentanone	µg/L	50								<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
Bromobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Bromodichloromethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Bromoform	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Bromomethane	µg/L	50								<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
Carbon disulfide	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Carbon tetrachloride	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Naphthalene	µg/L	7								<7.0	<7.0	0	<7.0	<7.0	0	<7.0	<7.0	0			
Chlorobenzene	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Chlorodibromomethane	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			
Chloroethane	µg/L	50								<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
Chloroform	µg/L	5								<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0			



SDG	ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14
Field_ID	VK_MW01_270314	D01_270314_SN	VK_MW06_280314	D01_280314_SN	VA_MW06_280314	D04_280314_SO	VT_MW01_310314	D01_310314_SN	VO_MW08	D01_310314_KM		
Sampled_Date-Time	27/03/2014 12:05	27/03/2014 12:05	28/03/2014 10:34	28/03/2014 10:34	28/03/2014 15:00	28/03/2014 15:00	31/03/2014 11:05	31/03/2014 11:05	31/03/2014 12:40	31/03/2014 12:40		
Method_Type	ChemName	Units	EQL	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD	RPD
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Mercury by FIMS				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1	<1.0	<1.0	0	3.0	3.0	0	<1.0	<1.0	0
	Barium (Filtered)	µg/l	1				160.0	164.0	2		117.0	115.0
	Beryllium (Filtered)	µg/l	1				2.0	3.0	40		<1.0	<1.0
	Boron (Filtered)	µg/l	50				80.0	70.0	13		110.0	110.0
	Cadmium (Filtered)	µg/l	0.1	<0.1	<0.1	0	0.2	0.1	67	<0.1	<0.1	<0.1
	Chromium (III+VI) (Filtered)	µg/l	1	<1.0	<1.0	0	1.0	1.0	0	<1.0	<1.0	<1.0
	Cobalt (Filtered)	µg/l	1				22.0	21.0	5		3.0	3.0
	Copper (Filtered)	µg/l	1	2.0	<1.0	67	12.0	14.0	15	<1.0	<1.0	<1.0
	Lead (Filtered)	µg/l	1	12.0	12.0	0	39.0	39.0	0	<1.0	<1.0	<1.0
	Manganese (Filtered)	µg/l	1				2090.0	2200.0	5		458.0	462.0
	Molybdenum (Filtered)	µg/l	1				<1.0	<1.0	0		<1.0	<1.0
	Nickel (Filtered)	µg/l	1	5.0	5.0	0	12.0	11.0	9	3.0	3.0	3.0
	Selenium (Filtered)	µg/l	10				<10.0	20.0	67		<10.0	<10.0
	Thallium (Filtered)	µg/l	1				<1.0	<1.0	0		<1.0	<1.0
	Vanadium (Filtered)	µg/l	10				<10.0	<10.0	0		<10.0	<10.0
	Zinc (Filtered)	µg/l	5 (Primary): 1 (Interlab)	34.0	19.0	57	61.0	64.0	5	13.0	21.0	47
Metals by ICP-MS - Suite A												
Dissolved Metals in Fresh Water -Suite A by ORC-1	Arsenic (Filtered)	µg/L	0.2									
	Barium (Filtered)	µg/L	0.5									
	Beryllium (Filtered)	µg/L	0.1									
	Boron (Filtered)	µg/L	5									
	Cadmium (Filtered)	µg/L	0.05									
	Chromium (III+VI) (Filtered)	µg/L	0.2									
	Cobalt (Filtered)	µg/L	0.1									
	Copper (Filtered)	µg/L	0.5									
	Lead (Filtered)	µg/L	0.1									
	Manganese (Filtered)	µg/L	0.5									
	Molybdenum (Filtered)	µg/L	0.1									
	Nickel (Filtered)	µg/L	0.5									
	Thallium (Filtered)	µg/L	0.02									
	Vanadium (Filtered)	µg/L	0.2									
	Zinc (Filtered)	µg/L	1									
Metals in Fresh Water -Suite A by ORC-1												
Dissolved Metals in Fresh Water -Suite B by ORC-1	Selenium (Filtered)	µg/L	0.2									
Metals in Fresh Water -Suite B by ORC-1												
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4,6-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4-dimethylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,6-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-chlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-nitrophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	3-&4-methylphenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	4-chloro-3-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benz(a)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(a)pyrene	µg/L	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(g,h,i)perylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Naphthalene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Chrysene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Fluorene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Phenanthrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Pentachlorophenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	PAHs (Sum of total)	µg/L	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
ols (GC/MS - SIM)												
PFOS and PFOA	6:2 Fluorotelomer Sulfonate (6:2 FTS)	µg/L	0.1					<0.1	0	<0.1	<0.1	0
	Perfluorooctanoate	µg/L	0.02					<0.02	0	<0.02	<0.02	0
	PFOA	µg/L	0.02					<0.02	0	<0.02	<0.02	0
PFOA												
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	µg/L	1					<1.0	0	<1.0	<1.0	0
ated Biphenyls (PCB)												
Semivolatile Compounds by GCMS/SIM - Ultra-trace)	2-(acetylamino) fluorene	µg/L	0.1									
	2-methylnaphthalene	µg/L	0.1									
	3-methylcholanthrene	µg/L	0.1									
	7,12-dimethylbenz(a)anthracene	µg/L	0.1									
	Acenaphthene	µg/L	0.1									
	Acenaphthylene	µg/L	0.1									
	Anthracene	µg/L	0.1									
	Benz(a)anthracene	µg/L	0.1									
	Benzo(a)pyrene	µg/L	0.05									
	Benzo(b)fluoranthene	µg/L	0.1									
	Benzo(e)pyrene	µg/L	0.1									
	Benzo(g,h,i)perylene	µg/L	0.1									
	Benzo(k)fluoranthene	µg/L	0.1									
	Naphthalene	µg/L	0.1									
	Chrysene	µg/L	0.1									
	Coronene	µg/L	0.1									
	Dibenz(a,h)anthracene	µg/L	0.1									
	Fluoranthene	µg/L	0.1									
	Fluorene	µg/L	0.1									
	Indeno(1,2,3-c,d)pyrene	µg/L	0.1									
	Phenanthrene	µg/L	0.1									
	Pyrene	µg/L	0.1									





SDG	ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14
Field_ID	VK_MW01_270314	D01_270314_SN	VK_MW06_280314	D01_280314_SN	VA_MW06_280314	D04_280314_SO	VT_MW01_310314	D01_310314_SN	VO_MW08	D01_310314_KM		
Sampled_Date-Time	27/03/2014 12:05	27/03/2014 12:05	28/03/2014 10:34	28/03/2014 10:34	28/03/2014 15:00	28/03/2014 15:00	31/03/2014 11:05	31/03/2014 11:05	31/03/2014 12:40	31/03/2014 12:40		
		RPD		RPD		RPD		RPD		RPD		RPD
Pervlene	0.1											
PAHs (Sum of total)	0.05											
Carcinogenic PAHs (as BaP TEQ)	0.05											
e Compounds by GCMS(SIM - Ultra-trace)												
TPH - Semivolatile Fraction												
TRH >C10-C14 Fraction	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
TRH >C15-C28 Fraction	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C29-C36 Fraction	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
TRH >C10-C36 Fraction	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
TRH >C10-C16 Fraction	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C10-C16 less Naphthalene (F2)	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C16-C34 Fraction	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C34-C40 Fraction	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C10-C40 Fraction	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
ivolatile Fraction												
TPH Volatiles/BTEX												
Benzene	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
Ethylbenzene	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
Toluene	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
TRH >C6-C9 Fraction	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
Total BTEX	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
TRH >C6-C10 Fraction	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
Xylene (m & p)	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
TRH >C6-C10 less BTEX (F1)	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
Xylene (o)	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
Xylene Total	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
Naphthalene	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
es/BTEX												
Volatile Organic Compounds												
1,1,1,2-tetrachloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1,1-trichloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1,2,2-tetrachloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1,2-trichloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1-dichloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1-dichloroethene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,1-dichloropropene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2,3-trichlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2,3-trichloropropane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2,4-trichlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2,4-trimethylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2-dibromo-3-chloropropane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2-dibromoethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2-dichlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2-dichloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,2-dichloropropane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,3,5-trimethylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,3-dichlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,3-dichloropropane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
1,4-dichlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
2,2-dichloropropane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
2-chlorotoluene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Methyl Ethyl Ketone	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
2-hexanone (MBK)	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
4-chlorotoluene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
4-Methyl-2-pentanone	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
Bromobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Bromodichloromethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Bromoform	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Bromomethane	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
Carbon disulfide	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Carbon tetrachloride	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Naphthalene	7	<7.0	<7.0	0	<7.0	<7.0	0	<7.0	<7.0	0	<7.0	<7.0
Chlorobenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Chlorodibromomethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Chloroethane	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
Chloroform	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Chloromethane	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
cis-1,2-dichloroethene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
cis-1,3-dichloropropene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
cis-1,4-Dichloro-2-butene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Dibromomethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Dichlorodifluoromethane	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
Hexachlorobutadiene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Iodomethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Isopropylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
n-butylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
n-propylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Pentachloroethane	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
p-isopropyltoluene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
sec-butylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Styrene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Trichloroethene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
tert-butylbenzene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Tetrachloroethene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
trans-1,2-dichloroethene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
trans-1,3-dichloropropene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
trans-1,4-Dichloro-2-butene	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0
Trichlorofluoromethane	50	<50.0	<50.0	0	<50.0	<50.0	0					





SDG	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	Interlab_D	ALSE-Sydney 02-Apr-14	Interlab_D					
Field_ID	VU_MW03	D01_010414_KM	RPD	VU_MW04_010414	D01_010414_SB	RPD	VB_MW05_010414	D01_010414_SN	RPD	VU_MW04_010414	T01-010414-SB	RPD	VU_MW03	T01-010414-KM	RPD	
Sampled_Date-Time	1/04/2014 14:51	1/04/2014 14:51		1/04/2014 15:00	1/04/2014 15:00		1/04/2014 8:10	1/04/2014 8:10		1/04/2014 15:00	1/04/2014 15:00		1/04/2014 14:51	1/04/2014 14:51		
Perylene	µg/L	0.1														
PAHs (Sum of total)	µg/L	0.05														
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.05														
<b>Compounds by GCMS(SIM) - Ultra-trace</b>																
<b>TPH - Semivolatile Fraction</b>																
TRH >C10-C14 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	0
TRH >C15-C28 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C29-C36 Fraction	µg/L	50 (Primary); 100 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0	0	<50.0	<100.0
TRH >C10-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0
TRH >C10-C16 Fraction	µg/L	100 (Primary); 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<50.0	0	<100.0	<50.0
TRH >C10-C16 less Naphthalene (F2)	µg/L	100 (Primary); 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<50.0	0	<100.0	<50.0
TRH >C16-C34 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C34-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
TRH >C10-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
<b>TPH Volatiles/BTEX</b>																
Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
Ethylbenzene	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	<2.0	<1.0
Toluene	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	<2.0	<1.0
TRH >C6-C9 Fraction	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	70.0	80.0	13	<20.0	<10.0	0	<20.0	<10.0
Total BTEX	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
TRH >C6-C10 Fraction	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	80.0	100.0	22	<20.0	<10.0	0	<20.0	<10.0
Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
TRH >C6-C10 less BTEX (F1)	µg/L	20 (Primary); 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0	80.0	100.0	22	<20.0	<10.0	0	<20.0	<10.0
Xylene (o)	µg/L	2 (Primary); 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<1.0	0	<2.0	<1.0
Xylene Total	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
Naphthalene	µg/L	5 (Primary); 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<1.0	0	<5.0	<1.0
<b>Volatiles/BTEX</b>																
<b>Volatile Organic Compounds</b>																
1,1,1,2-tetrachloroethane	µg/L	5														
1,1,1-trichloroethane	µg/L	5														
1,1,2,2-tetrachloroethane	µg/L	5														
1,1,2-trichloroethane	µg/L	5														
1,1-dichloroethane	µg/L	5														
1,1-dichloroethene	µg/L	5														
1,1-dichloropropene	µg/L	5														
1,2,3-trichlorobenzene	µg/L	5														
1,2,3-trichloropropane	µg/L	5														
1,2,4-trichlorobenzene	µg/L	5														
1,2,4-trimethylbenzene	µg/L	5														
1,2-dibromo-3-chloropropane	µg/L	5														
1,2-dibromoethane	µg/L	5														
1,2-dichlorobenzene	µg/L	5														
1,2-dichloroethane	µg/L	5														
1,2-dichloropropane	µg/L	5														
1,3,5-trimethylbenzene	µg/L	5														
1,3-dichlorobenzene	µg/L	5														
1,3-dichloropropane	µg/L	5														
1,4-dichlorobenzene	µg/L	5														
2,2-dichloropropane	µg/L	5														
2-chlorotoluene	µg/L	5														
Methyl Ethyl Ketone	µg/L	50														
2-hexanone (MBK)	µg/L	50														
4-chlorotoluene	µg/L	5														
4-Methyl-2-pentanone	µg/L	50														
Bromobenzene	µg/L	5														
Bromodichloromethane	µg/L	5														
Bromoform	µg/L	5														
Bromomethane	µg/L	50														
Carbon disulfide	µg/L	5														
Carbon tetrachloride	µg/L	5														
Naphthalene	µg/L	7														
Chlorobenzene	µg/L	5														
Chlorodibromomethane	µg/L	5														
Chloroethane	µg/L	50														
Chloroform	µg/L	5														
Chloromethane	µg/L	50														
cis-1,2-dichloroethene	µg/L	5														
cis-1,3-dichloropropene	µg/L	5														
cis-1,4-Dichloro-2-butene	µg/L	5														
Dibromomethane	µg/L	5														
Dichlorodifluoromethane	µg/L	50														
Hexachlorobutadiene	µg/L	5														
Iodomethane	µg/L	5														
Isopropylbenzene	µg/L	5														
n-butylbenzene	µg/L	5														
n-propylbenzene	µg/L	5														
Pentachloroethane	µg/L	5														
p-isopropyltoluene	µg/L	5														
sec-butylbenzene	µg/L	5														
Styrene	µg/L	5														
Trichloroethene	µg/L	5														
tert-butylbenzene	µg/L	5														
Tetrachloroethene	µg/L	5														
trans-1,2-dichloroethene	µg/L	5														
trans-1,3-dichloropropene	µg/L	5														
trans-1,4-Dichloro-2-butene	µg/L	5														
Trichlorofluoromethane	µg/L	50														
Vinyl acetate	µg/L	50														
Vinyl chloride	µg/L	50														

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.  
 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )  
 \*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to



SDG	ES1406274	ES1406274		ES1406281	ES1406281		ES1406496	ES1406496	
Field_ID	VO_MW10_210314	D01_210314_SN	RPD	VO_MW12_200314	D01_200314_SN	RPD	VN_MW03_230314	D01_230314_SN	RPD
Sampled_Date-Time	21/03/2014 8:30	21/03/2014 8:30		20/03/2014 15:08	20/03/2014 15:08		23/03/2014 9:40	23/03/2014 9:40	

Method_Type	ChemName	Units	EQL									
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1							<0.1	<0.1	0
Mercury by FIMS												
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1							1.0	1.0	0
	Barium (Filtered)	µg/l	1							113.0	114.0	1
	Beryllium (Filtered)	µg/l	1							<1.0	<1.0	0
	Boron (Filtered)	µg/l	50							<50.0	<50.0	0
	Cadmium (Filtered)	µg/l	0.1							<0.1	<0.1	0
	Chromium (III+VI) (Filtered)	µg/l	1							<1.0	<1.0	0
	Cobalt (Filtered)	µg/l	1							10.0	10.0	0
	Copper (Filtered)	µg/l	1							2.0	7.0	111
	Lead (Filtered)	µg/l	1							26.0	24.0	8
	Manganese (Filtered)	µg/l	1							735.0	752.0	2
	Molybdenum (Filtered)	µg/l	1							<1.0	<1.0	0
	Nickel (Filtered)	µg/l	1							13.0	13.0	0
	Selenium (Filtered)	µg/l	10							<10.0	<10.0	0
	Thallium (Filtered)	µg/l	1							<1.0	<1.0	0
	Vanadium (Filtered)	µg/l	10							<10.0	<10.0	0
	Zinc (Filtered)	µg/l	5							20.0	21.0	5
Metals by ICP-MS - Suite A												
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4,6-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,4-dimethylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2,6-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-chlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	2-nitrophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	3-&4-methylphenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	4-chloro-3-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benz(a)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(g,h,i)perylene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Naphthalene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Chrysene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Fluorene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Phenanthrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Pentachlorophenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
ols (GC/MS - SIM)												
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0			
Mercury by FIMS												
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1.0	<1.0	0						
	Barium	µg/l	1	157.0	175.0	11						
	Beryllium	µg/l	1	<1.0	<1.0	0						
	Boron	µg/l	50	<50.0	<50.0	0						
	Cadmium	µg/l	0.1	<0.1	<0.1	0						
	Chromium (III+VI)	µg/l	1	<1.0	<1.0	0						
	Cobalt	µg/l	1	27.0	26.0	4						
	Copper	µg/l	1	<1.0	<1.0	0						
	Lead	µg/l	1	<1.0	<1.0	0						
	Manganese	µg/l	1	959.0	1070.0	11						
	Nickel	µg/l	1	10.0	9.0	11						
	Selenium	µg/l	10	<10.0	<10.0	0						
	Vanadium	µg/l	10	<10.0	<10.0	0						
	Zinc	µg/l	5	37.0	17.0	74						



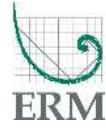
SDG	ES1406274	ES1406274		ES1406281	ES1406281		ES1406496	ES1406496	
Field_ID	VO_MW10_210314	D01_210314_SN	RPD	VO_MW12_200314	D01_200314_SN	RPD	VN_MW03_230314	D01_230314_SN	RPD
Sampled_Date-Time	21/03/2014 8:30	21/03/2014 8:30		20/03/2014 15:08	20/03/2014 15:08		23/03/2014 9:40	23/03/2014 9:40	

s by ICP-MS - Suite A											
Total Metals in Saline Water Suite A by ORC-ICPMS	Arsenic	µg/L	0.5				109.0	109.0	0		
	Barium	µg/L	1				124.0	126.0	2		
	Beryllium	µg/L	0.1				13.7	13.7	0		
	Boron	µg/L	100				1700.0	1710.0	1		
	Cadmium	µg/L	0.2				0.4	0.4	0		
	Chromium (III+VI)	µg/L	0.5				1.9	1.9	0		
	Cobalt	µg/L	0.2				10.1	10.3	2		
	Copper	µg/L	1				3.0	5.0	50		
	Lead	µg/L	0.2				13.1	13.2	1		
	Manganese	µg/L	0.5				707.0	699.0	1		
	Molybdenum	µg/L	0.1				<0.1	<0.1	0		
	Nickel	µg/L	0.5				33.5	33.3	1		
	Thallium	µg/L	0.1				1.7	1.7	0		
	Vanadium	µg/L	0.5				51.8	51.8	0		
	Zinc	µg/L	5				258.0	273.0	6		
s in Saline Water Suite A by ORC-ICPMS											
Total Metals in Saline Water -Suite B by ORC-ICPMS	Selenium	µg/L	2				247.0	248.0	0		
s in Saline Water -Suite B by ORC-ICPMS											
TPH - Semivolatile Fraction											
	TRH >C10-C14 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
	TRH >C15-C28 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
	TRH >C29-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
	TRH >C10-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0
	TRH >C10-C16 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
	TRH >C16-C34 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
	TRH >C34-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
	TRH >C10-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0
ivolatile Fraction											
TPH Volatiles/BTEX											
	Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
	Ethylbenzene	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
	Toluene	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
	TRH >C6-C9 Fraction	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
	Total BTEX	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0
	TRH >C6-C10 Fraction	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
	Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0
	Xylene (o)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
	Xylene Total	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0
	Naphthalene	µg/L	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 ( > 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



SDG	ES1405673	ES1405673	ES1405741	ES1405741	ES1405741	Interlab_D
Field_ID	VR_C_SW05	D06_130314_JD	VR_C_SW07	D03_140314_JD	VR_C_SW07	T02-140314-JD
Sampled_Date-Time	13/03/2014	13/03/2014	14/03/2014	14/03/2014	14/03/2014	14/03/2014

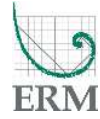
Method_Type	ChemName	Units	EQL									
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2,4,6-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2,4-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2,4-dimethylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2,6-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2-chlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	2-nitrophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	3-&4-methylphenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0		
	4-chloro-3-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	Pentachlorophenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0		
	Phenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0		
	Semivolatile Compounds by GCMS(SIM - Ultra-trace)	2-(acetylamino) fluorene	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	
2-methylnaphthalene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
3-methylcholanthrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
7,12-dimethylbenz(a)anthracene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Acenaphthene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Acenaphthylene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Anthracene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Benz(a)anthracene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Benzo(a) pyrene		µg/L	0.05 (Primary): 0.01 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0
Benzo(b)fluoranthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Benzo(e)pyrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Benzo(g,h,i)perylene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Benzo(k)fluoranthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Naphthalene		µg/L	0.1 (Primary): 1 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Chrysene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Coronene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1		
Dibenz(a,h)anthracene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Fluoranthene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	0.01	0
Fluorene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Indeno(1,2,3-c,d)pyrene		µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0
Phenanthrene	µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0	
Pyrene	µg/L	0.1 (Primary): 0.01 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.01	0	
Perylene	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1			
PAHs (Sum of total)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	0.01	0	
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			
Total Mercury by FIMS	Mercury	µg/l	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0
Total Metals in Fresh Water -Suite A by ORC-ICPMS	Arsenic	µg/L	0.2 (Primary): 1 (Interlab)				2.8	3.0	7	<b>2.8</b>	<b>2.0</b>	<b>33</b>
	Barium	µg/L	0.5 (Primary): 1 (Interlab)				58.2	58.8	1	58.2	57.0	2
	Beryllium	µg/L	0.1 (Primary): 0.5 (Interlab)				0.2	0.2	0	0.2	<0.5	0
	Boron	µg/L	5				284.0	284.0	0	284.0	230.0	21
	Cadmium	µg/L	0.05 (Primary): 0.1 (Interlab)				<0.05	<0.05	0	<b>&lt;0.05</b>	<b>0.1</b>	<b>67</b>
	Chromium (III+VI)	µg/L	0.2 (Primary): 1 (Interlab)				0.9	0.6	40	0.9	<1.0	0
	Cobalt	µg/L	0.1 (Primary): 1 (Interlab)				1.8	1.8	0	<b>1.8</b>	<b>1.0</b>	<b>57</b>
	Copper	µg/L	0.5 (Primary): 1 (Interlab)				2.7	3.0	11	2.7	2.0	30
	Lead	µg/L	0.1 (Primary): 1 (Interlab)				1.1	1.3	17	1.1	1.0	10
	Manganese	µg/L	0.5 (Primary): 5 (Interlab)				144.0	141.0	2	144.0	150.0	4
	Molybdenum	µg/L	0.1 (Primary): 1 (Interlab)				2.4	2.4	0	2.4	2.0	18
	Nickel	µg/L	0.5 (Primary): 1 (Interlab)				3.8	3.7	3	3.8	3.0	24
	Thallium	µg/L	0.02 (Primary): 1 (Interlab)				<0.02	<0.02	0	<0.02	<1.0	0
	Vanadium	µg/L	0.2				2.1	2.1	0	2.1		
	Zinc	µg/L	1				65.0	67.0	3	65.0	63.0	3
Total Metals in Fresh Water -Suite B by ORC-ICPMS	Selenium	µg/L	0.2 (Primary): 1 (Interlab)				0.9	1.0	11	0.9	<1.0	0
Total Metals in Saline Water Suite A by ORC-ICPMS	Arsenic	µg/L	0.5	1.7	1.8	6						
	Barium	µg/L	1	55.0	51.0	8						
	Beryllium	µg/L	0.1	<0.1	<0.1	0						
	Boron	µg/L	100	2820.0	3020.0	7						
	Cadmium	µg/L	0.2	<0.2	<0.2	0						
	Chromium (III+VI)	µg/L	0.5	<b>1.4</b>	<b>&lt;0.5</b>	<b>95</b>						
	Cobalt	µg/L	0.2	0.8	0.6	29						
	Copper	µg/L	1	<1.0	<1.0	0						
	Lead	µg/L	0.2	0.3	0.3	0						
	Manganese	µg/L	0.5	144.0	128.0	12						
	Molybdenum	µg/L	0.1	8.3	9.1	9						
Nickel	µg/L	0.5	1.6	1.0	46							





SDG		ES1405673	ES1405673	ES1405741	ES1405741	ES1405741	Interlab_D		
Field_ID	Sampled_Date-Time	VR_C_SW05	D06_130314_JD	VR_C_SW07	D03_140314_JD	VR_C_SW07	T02-140314-JD	RPD	RPD
		13/03/2014	13/03/2014	14/03/2014	14/03/2014	14/03/2014	14/03/2014		
	Thallium	µg/L	0.1	<0.1	<0.1	0			
	Vanadium	µg/L	0.5	1.0	1.2	18			
	Zinc	µg/L	5	<b>33.0</b>	<b>19.0</b>	<b>54</b>			
Total Metals in Saline Water -Suite B by ORC-ICPMS	Selenium	µg/L	2	<2.0	<2.0	0			
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	µg/L	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 Fraction	µg/L	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C16-C34 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C34-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0
TPH Volatiles/BTEX	Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	Ethylbenzene	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0
	Toluene	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0
	TRH >C6-C9 Fraction	µg/L	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0
	Total BTEX	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0
	TRH >C6-C10 Fraction	µg/L	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0
	Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0
	TRH >C6-C10 less BTEX (F1)	µg/L	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<20.0	0
	Xylene (o)	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<2.0	0
	Xylene Total	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0
	Naphthalene	µg/L	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.  
 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )  
 \*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



Method Type	ChemName	Units	EQL	ES1405359			ES1405359			ES1405359			
				Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2,4,6-trichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2,4-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2,4-dimethylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2,6-dichlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2-chlorophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	2-nitrophenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	3-&4-methylphenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
	4-chloro-3-methylphenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	Pentachlorophenol	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
	Phenol	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	
	ols (GC/MS - SIM)												
	Semivolatile Compounds by GCMS(SIM - Ultra-trace)	2-(acetylamino) fluorene	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
2-methylnaphthalene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
3-methylcholanthrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
7,12-dimethylbenz(a)anthracene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Acenaphthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Acenaphthylene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Anthracene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Benz(a)anthracene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Benzo(a) pyrene		µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	
Benzo(b)fluoranthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Benzo(e)pyrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Benzo(g,h,i)perylene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Benzo(k)fluoranthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Naphthalene		µg/L	0.1 (Primary); 5 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Chrysene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Coronene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Dibenz(a,h)anthracene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Fluoranthene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Fluorene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Indeno(1,2,3-c,d)pyrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Phenanthrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Pyrene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Perylene		µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
PAHs (Sum of total)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0		
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0		
e Compounds by GCMS(SIM - Ultra-trace)													
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
Total Metals in Saline Water Suite A by ORC-ICPMS													
Arsenic	µg/L	0.5	3.0	2.8	7	3.2	3.2	0	3.2	3.1	3		
Barium	µg/L	1	13.0	12.0	8	12.0	11.0	9	12.0	12.0	0		
Beryllium	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0		
Boron	µg/L	100	4000.0	4090.0	2	3710.0	3800.0	2	3710.0	3820.0	3		
Cadmium	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0		
Chromium (III+VI)	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0		
Cobalt	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0		
Copper	µg/L	1	2.0	2.0	0	2.0	2.0	0	2.0	3.0	40		
Lead	µg/L	0.2	<b>0.6</b>	<b>1.1</b>	<b>59</b>	0.2	<0.2	0	0.2	0.2	0		
Manganese	µg/L	0.5	10.9	10.7	2	7.9	7.5	5	7.9	8.1	2		
Molybdenum	µg/L	0.1	13.1	13.1	0	13.0	12.9	1	13.0	12.9	1		
Nickel	µg/L	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0		
Thallium	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0		
Vanadium	µg/L	0.5	4.6	4.7	2	4.3	4.4	2	4.3	4.3	0		
Zinc	µg/L	5	14.0	19.0	30	12.0	10.0	18	12.0	13.0	8		
s in Saline Water Suite A by ORC-ICPMS													
Total Metals in Saline Water -Suite B by ORC-ICPMS	Selenium	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0	
s in Saline Water -Suite B by ORC-ICPMS													
TPH - Semivolatile Fraction													
TRH >C10-C14 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
TRH >C15-C28 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
TRH >C29-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
TRH >C10-C36 Fraction	µg/L	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
TRH >C10-C16 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
TRH >C16-C34 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
TRH >C34-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
TRH >C10-C40 Fraction	µg/L	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
ivolatile Fraction													
TPH Volatiles/BTEX													
Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0		
Ethylbenzene	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0		
Toluene	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0		
TRH >C6-C9 Fraction	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0		
Total BTEX	µg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0		
TRH >C6-C10 Fraction	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0		
Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0		
TRH >C6-C10 less BTEX (F1)	µg/L	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0		
Xylene (o)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0		
Xylene Total	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0		
Naphthalene	µg/L	5 (Primary); 0.1 (Interlab)	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<0.1	0		

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL))

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



SDG	ES1405672	ES1405672	RPD	ES1405672	ES1405672	RPD	ES1405672	ES1405672	RPD	ES1405740	ES1405740	RPD
Field_ID	VR_C_SS05_0.25	D05_130314_JD_0.25		VR_C_SS05_0.55	D05_130314_JD_0.55		VR_C_SS05_0.80	D05_130314_JD_0.80		VR_C_SS07_0.30	D02_140314_JD	
Sampled_Date-Time	13/03/2014 15:00	13/03/2014 15:00		13/03/2014 15:00	13/03/2014 15:00		13/03/2014 15:00	13/03/2014 15:00		14/03/2014 15:00	14/03/2014 15:00	
Method_Type	ChemName	Units	EQL									
Total Metals by ICP-MS	Arsenic	mg/kg	0.1	5.0	4.9	2	4.3	4.3	0	2.4	2.6	8
	Beryllium	mg/kg	0.1	0.3	0.3	0	0.3	0.3	0	0.2	0.2	0
	Boron	mg/kg	5	19.0	16.0	17	16.0	14.0	13	28.0	27.0	4
	Cadmium	mg/kg	0.1	<0.1	0.1	0	<0.1	0.1	0	<0.1	<0.1	0
	Chromium (III+VI)	mg/kg	0.1	10.7	12.4	15	9.1	8.8	3	3.5	3.6	3
	Copper	mg/kg	0.1	4.5	4.8	6	4.8	4.8	0	3.7	3.9	5
	Lead	mg/kg	0.1	9.1	9.5	4	8.2	8.2	0	2.7	2.9	7
	Nickel	mg/kg	0.1	2.7	3.1	14	3.0	2.8	7	3.3	3.9	17
	Zinc	mg/kg	0.5	39.4	44.3	12	30.1	30.0	0	10.9	12.4	13
Is by ICP-MS												
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	32.4	32.7	1	34.5	34.6	0	43.9	46.8	6
Moisture Content												
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.5	1.1	<0.5	75	<0.5	<0.5	0	<0.5	<0.5	0
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Particle Size Analysis (Sieving)	% >75µm	%	1	51.0	49.0	4	36.0	39.0	8	64.0	64.0	0
	% <75 µm	%	1	49.0	51.0	4	63.0	60.0	5	33.0	34.0	3
	+75µm	%	1	51.0	49.0	4	37.0	40.0	8	67.0	66.0	2
	+150µm	%	1	18.0	8.0	77	7.0	17.0	83	51.0	38.0	29
	+300µm	%	1	2.0	2.0	0	2.0	2.0	0	20.0	19.0	5
	+425µm	%	1	1.0	<1.0	0	1.0	1.0	0	11.0	10.0	10
	+600µm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	8.0	7.0	13
	+1180µm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	6.0	4.0	40
	+2.36mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	3.0	2.0	40
	+4.75mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	+9.5mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	+19mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	+37.5mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	+75.0mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Cobbles	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Gravel	%	1	<1.0	<1.0	0	<1.0	<1.0	0	3.0	2.0	40
pH Analysis (Sieving)												
pH (1:5)	pH (Lab)	pH_Units	0.1	8.7	8.5	2	8.8	8.6	2	7.8	7.7	1
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	2-(acetyl amino) fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	2-methylnaphthalene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	3-methylcholanthrene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	7,12-dimethylbenz(a)anthracene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Acenaphthene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Acenaphthylene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(a)anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(a) pyrene	mg/kg	0.01 (Primary): 0.05 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(b)fluoranthene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(e)pyrene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(g,h,i)perylene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Benzo(k)fluoranthene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.01	0.01	0.01	0	0.01	0.01	0	0.01	0.01	0
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.01 (Primary): 0.5 (Interlab)	0.02	0.02	0	0.02	0.02	0	0.02	0.02	0
	Naphthalene	mg/kg	0.01 (Primary): 1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Chrysene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Coronene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Dibenz(a,h)anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Fluoranthene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	0.01	0	<0.01	<0.01	0
	Fluorene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Phenanthrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Pyrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	0.01	0.02	67	0.01	0.02	67	<0.01	<0.01	0
	Perylene	mg/kg	0.01	<0.01	<0.01	0	0.01	<0.01	0	<0.01	<0.01	0
	PAHs (Sum of total)	mg/kg	0.01	0.01	0.02	67	0.02	0.03	40	<0.01	<0.01	0
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Semivolatile Compounds by GCMS(SIM - Ultra-trace)												
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Mercury by FIMS												



SDG	ES1405672			ES1405672			ES1405672			ES1405672			ES1405740			ES1405740		
	Field_ID	VR_C_SS05_0.25	D05_130314_JD_0.25	RPD	VR_C_SS05_0.55	D05_130314_JD_0.55	RPD	VR_C_SS05_0.80	D05_130314_JD_0.80	RPD	VR_C_SS07_0.30	D02_140314_JD	RPD	VR_C_SS07_0.30	D02_140314_JD	RPD		
Sampled_Date-Time	13/03/2014 15:00	13/03/2014 15:00		13/03/2014 15:00	13/03/2014 15:00		13/03/2014 15:00	13/03/2014 15:00		14/03/2014 15:00	14/03/2014 15:00		14/03/2014 15:00	14/03/2014 15:00				
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)															
	Barium	mg/kg	10 (Primary): 1 (Interlab)															
	Beryllium	mg/kg	1															
	Boron	mg/kg	50 (Primary): 3 (Interlab)															
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)															
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)															
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)															
	Copper	mg/kg	5 (Primary): 1 (Interlab)															
	Lead	mg/kg	5 (Primary): 1 (Interlab)															
	Manganese	mg/kg	5 (Primary): 1 (Interlab)															
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)															
	Nickel	mg/kg	2 (Primary): 1 (Interlab)															
	Selenium	mg/kg	5 (Primary): 2 (Interlab)															
	Thallium	mg/kg	5 (Primary): 2 (Interlab)															
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)															
	Zinc	mg/kg	5 (Primary): 1 (Interlab)															
s by ICP-AES																		
Total Metals by ICP-MS - Suite X	Barium	mg/kg	0.1	17.7	21.6	20	17.4	16.1	8	5.5	6.4	15						
	Cobalt	mg/kg	0.1	2.1	2.3	9	2.2	2.2	0	3.0	3.4	13						
	Manganese	mg/kg	0.1	21.1	23.0	9	19.8	18.9	5	31.1	37.4	18						
	Molybdenum	mg/kg	0.1	3.7	3.3	11	2.9	2.5	15	9.1	9.8	7						
	Vanadium	mg/kg	1	50.0	46.0	8	40.0	36.0	11	16.0	15.0	6						
s by ICP-MS - Suite X																		
Total Metals by ICP-MS - Suite Y	Selenium	mg/kg	1	7.0	8.0	13	5.0	5.0	0	2.0	2.0	0						
	Thallium	mg/kg	0.1	<0.1	0.1	0	<0.1	<0.1	0	<0.1	<0.1	0						
s by ICP-MS - Suite Y																		
Total Organic Carbon	TOC	%	0.02	0.65	0.7	7	0.72	0.7	3	4.31	4.34	1	0.08	0.09	12			
Organic Carbon																		
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0			
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0			
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0			
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0			
	TRH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			
Volatiles Fraction																		
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0			
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0			
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0			
	TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0			
	Xylene (m & p)	mg/kg	0.5 (Primary): 2 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	TRH >C6-C10 less BTEX (F1)	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0			
	Xylene (o)	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Xylene Total	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0			
	Naphthalene	mg/kg	1 (Primary): 0.1 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0			

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Method Type	ChemName	Units	EQL	ES1405740			Interlab_D			ES1405740			Interlab_D			
				Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	
Total Metals by ICP-MS	Arsenic	mg/kg	0.1													
	Beryllium	mg/kg	0.1													
	Boron	mg/kg	5													
	Cadmium	mg/kg	0.1													
	Chromium (III+VI)	mg/kg	0.1													
	Copper	mg/kg	0.1													
	Lead	mg/kg	0.1													
	Nickel	mg/kg	0.1													
	Zinc	mg/kg	0.5													
Is by ICP-MS																
Moisture Content	Moisture	%	1 (Primary): 0.1 (Interlab)	20.5	23.1	12	20.5	18.0	13	20.1	22.0	9				
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	3-&4-methylphenol	mg/kg	1	<1.0	<1.0	0	<1.0			<1.0						
	4-chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0			<2.0						
	Phenol	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5						
Particle Size Analysis (Sieving)	% >75µm	%	1	67.0	75.0	11	67.0			56.0						
	% <75 µm	%	1	10.0	<1.0	164	10.0			39.0						
	+75µm	%	1	90.0	100.0	11	90.0			61.0						
	+150µm	%	1	84.0	99.0	16	84.0			47.0						
	+300µm	%	1	78.0	86.0	10	78.0			36.0						
	+425µm	%	1	64.0	68.0	6	64.0			26.0						
	+600µm	%	1	49.0	51.0	4	49.0			18.0						
	+1180µm	%	1	33.0	35.0	6	33.0			10.0						
	+2.36mm	%	1	22.0	25.0	13	22.0			4.0						
	+4.75mm	%	1	13.0	17.0	27	13.0			1.0						
	+9.5mm	%	1	2.0	7.0	111	2.0			<1.0						
	+19mm	%	1	<1.0	<1.0	0	<1.0			<1.0						
	+37.5mm	%	1	<1.0	<1.0	0	<1.0			<1.0						
	+75.0mm	%	1	<1.0	<1.0	0	<1.0			<1.0						
	Cobbles	%	1	<1.0	<1.0	0	<1.0			<1.0						
	Gravel	%	1	22.0	25.0	13	22.0			4.0						
pH Analysis (Sieving)																
pH (1:5)	pH (Lab)	pH_Units	0.1	5.5	5.7	4	5.5			4.0						
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	2-(acetylamino) fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1			<0.1						
	2-methylnaphthalene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	3-methylcholanthrene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	7,12-dimethylbenz(a)anthracene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	Acenaphthene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Acenaphthylene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Benz(a)anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Benzo(a) pyrene	mg/kg	0.01 (Primary): 0.05 (Interlab)	<0.01	<0.01	0	<0.01	<0.05	0	<0.01	<0.05	0				
	Benzo(b)fluoranthene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	Benzo(e)pyrene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	Benzo(g,h,i)perylene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Benzo(k)fluoranthene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.01	0.01	0.01	0	0.01			0.01						
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.01 (Primary): 0.5 (Interlab)	0.02	0.02	0	0.02	<0.5	0	0.02	<0.5	0				
	Naphthalene	mg/kg	0.01 (Primary): 1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Chrysene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Coronene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	Dibenz(a,h)anthracene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Fluoranthene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Fluorene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Phenanthrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Pyrene	mg/kg	0.01 (Primary): 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.1	0				
	Perylene	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
	PAHs (Sum of total)	mg/kg	0.01	<0.01	<0.01	0	<0.01	0.0	0	<0.01	0.0	0				
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01						
Semivolatile Compounds by GCMS(SIM - Ultra-trace)																
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0				
Mercury by FIMS																

SDG Field_ID Sampled_Date-Time			ES1405740			ES1405740			ES1405740			
			VR_C_SS07_0.20 14/03/2014 15:00	D01_140314_JD 14/03/2014 15:00	RPD	VR_C_SS07_0.20 14/03/2014 15:00	T01_140314_JD 14/03/2014 15:00	RPD	VR_C_SS07_0.30 14/03/2014 15:00	T02_140314_JD 14/03/2014 15:00	RPD	
Total Metals by ICP-AES	Arsenic	mg/kg	5 (Primary): 4 (Interlab)	<5.0	<5.0	0	<5.0	<4.0	0	<5.0	<4.0	0
	Barium	mg/kg	10 (Primary): 1 (Interlab)	<10.0	<10.0	0	<10.0	8.0	0	<10.0	8.0	0
	Beryllium	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Boron	mg/kg	50 (Primary): 3 (Interlab)	<50.0	<50.0	0	<50.0	<3.0	0	<50.0	<3.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<0.4	0	<1.0	<0.4	0
	Chromium (III+VI)	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<b>4.0</b>	<b>67</b>	<2.0	3.0	40	6.0	6.0	0
	Cobalt	mg/kg	2 (Primary): 1 (Interlab)	<2.0	2.0	0	<2.0	2.0	0	<2.0	1.0	0
	Copper	mg/kg	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	4.0	0	8.0	9.0	12
	Lead	mg/kg	5 (Primary): 1 (Interlab)	<5.0	8.0	46	<5.0	6.0	18	<5.0	5.0	0
	Manganese	mg/kg	5 (Primary): 1 (Interlab)	46.0	30.0	42	46.0	48.0	4	<b>10.0</b>	<b>21.0</b>	<b>71</b>
	Molybdenum	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<1.0	0	<2.0	<1.0	0
	Nickel	mg/kg	2 (Primary): 1 (Interlab)	3.0	2.0	40	3.0	3.0	0	3.0	4.0	29
	Selenium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<2.0	0	<5.0	<2.0	0
	Thallium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	<2.0	0	<5.0	<2.0	0
	Vanadium	mg/kg	5 (Primary): 1 (Interlab)	<b>8.0</b>	<b>19.0</b>	<b>81</b>	8.0	7.0	13	14.0	13.0	7
	Zinc	mg/kg	5 (Primary): 1 (Interlab)	<b>30.0</b>	<b>55.0</b>	<b>59</b>	<b>30.0</b>	<b>60.0</b>	<b>67</b>	<b>11.0</b>	<b>31.0</b>	<b>95</b>
s by ICP-AES												
Total Metals by ICP-MS - Suite X	Barium	mg/kg	0.1									
	Cobalt	mg/kg	0.1									
	Manganese	mg/kg	0.1									
	Molybdenum	mg/kg	0.1									
	Vanadium	mg/kg	1									
s by ICP-MS - Suite X												
Total Metals by ICP-MS - Suite Y	Selenium	mg/kg	1									
	Thallium	mg/kg	0.1									
s by ICP-MS - Suite Y												
Total Organic Carbon	TOC	%	0.02	0.45	0.48	6	0.45			0.08		
nic Carbon												
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0			<50.0		
ivolatile Fraction												
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Ethylbenzene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TRH >C6-C9 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2			<0.2		
	TRH >C6-C10 Fraction	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
	Xylene (m & p)	mg/kg	0.5 (Primary): 2 (Interlab)	<0.5	<0.5	0	<0.5	<2.0	0	<0.5	<2.0	0
	TRH >C6-C10 less BTEX (F1)	mg/kg	10 (Primary): 25 (Interlab)	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0
	Xylene (o)	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0
	Xylene Total	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5		
	Naphthalene	mg/kg	1 (Primary): 0.1 (Interlab)	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<0.1	0

\*RPDs have only been considered where a concentration is greater than 0 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL) )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in



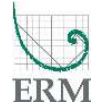
SDG	ALSE-Sydney 27-May-14	ALSE-Sydney 27-May-14	RPD	ALSE-Sydney 27-May-14	Interlab_D	RPD
Field_ID	VB_MW03	D01_270514		VP_MW01	D02-270514	
Sampled_Date-Time	27/05/2014 15:00	27/05/2014 15:00		27/05/2014 15:00	27/05/2014 15:00	

Chem_Group	ChemName	Units	EQL						
BTEX	Benzene	µg/L	1	<1.0	<1.0	0	6.0	8.0	29
	Ethylbenzene	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<1.0	0
	Toluene	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<1.0	0
	Total BTEX	µg/L	1	<1.0	<1.0	0			
	Xylene (m & p)	µg/L	2	<2.0	<2.0	0	<2.0	<2.0	0
	Xylene (o)	µg/L	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<1.0	0
	Xylene Total	µg/L	2	<2.0	<2.0	0			
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	µg/L	5	<5.0	<5.0	0			
	1,1,1-trichloroethane	µg/L	5	<5.0	<5.0	0			
	1,1,2,2-tetrachloroethane	µg/L	5	<5.0	<5.0	0			
	1,1,2-trichloroethane	µg/L	5	<5.0	<5.0	0			
	1,1-dichloroethane	µg/L	5	<5.0	<5.0	0			
	1,1-dichloroethene	µg/L	5	<5.0	<5.0	0			
	1,1-dichloropropene	µg/L	5	<5.0	<5.0	0			
	1,2,3-trichloropropane	µg/L	5	<5.0	<5.0	0			
	1,2-dibromo-3-chloropropane	µg/L	5	<5.0	<5.0	0			
	1,2-dichloroethane	µg/L	5	<5.0	<5.0	0			
	1,2-dichloropropane	µg/L	5	<5.0	<5.0	0			
	1,3-dichloropropane	µg/L	5	<5.0	<5.0	0			
	2,2-dichloropropane	µg/L	5	<5.0	<5.0	0			
	Bromodichloromethane	µg/L	5	<5.0	<5.0	0			
	Bromoform	µg/L	5	<5.0	<5.0	0			
	Carbon tetrachloride	µg/L	5	<5.0	<5.0	0			
	Chlorodibromomethane	µg/L	5	<5.0	<5.0	0			
	Chloroethane	µg/L	50	<50.0	<50.0	0			
	Chloroform	µg/L	5	<5.0	<5.0	0			
	Chloromethane	µg/L	50	<50.0	<50.0	0			
	cis-1,2-dichloroethene	µg/L	5	<5.0	<5.0	0			
	cis-1,3-dichloropropene	µg/L	5	<5.0	<5.0	0			
	Dibromomethane	µg/L	5	<5.0	<5.0	0			
Hexachlorobutadiene	µg/L	5	<5.0	<5.0	0				
Trichloroethene	µg/L	5	<5.0	<5.0	0				
Tetrachloroethene	µg/L	5	<5.0	<5.0	0				
trans-1,2-dichloroethene	µg/L	5	<5.0	<5.0	0				
trans-1,3-dichloropropene	µg/L	5	<5.0	<5.0	0				
Vinyl chloride	µg/L	50	<50.0	<50.0	0				
Halogenated Benzenes	1,2,3-trichlorobenzene	µg/L	5	<5.0	<5.0	0			
	1,2,4-trichlorobenzene	µg/L	5	<5.0	<5.0	0			
	1,2-dichlorobenzene	µg/L	5	<5.0	<5.0	0			
	1,3-dichlorobenzene	µg/L	5	<5.0	<5.0	0			
	1,4-dichlorobenzene	µg/L	5	<5.0	<5.0	0			
	2-chlorotoluene	µg/L	5	<5.0	<5.0	0			
	4-chlorotoluene	µg/L	5	<5.0	<5.0	0			
	Bromobenzene	µg/L	5	<5.0	<5.0	0			
	Chlorobenzene	µg/L	5	<5.0	<5.0	0			
Halogenated Hydrocarbons	1,2-dibromoethane	µg/L	5	<5.0	<5.0	0			
	Bromomethane	µg/L	50	<50.0	<50.0	0			
	Dichlorodifluoromethane	µg/L	50	<50.0	<50.0	0			
	Iodomethane	µg/L	5	<5.0	<5.0	0			
	Trichlorofluoromethane	µg/L	50	<50.0	<50.0	0			
MAH	1,2,4-trimethylbenzene	µg/L	5	<5.0	<5.0	0			
	1,3,5-trimethylbenzene	µg/L	5	<5.0	<5.0	0			
	Isopropylbenzene	µg/L	5	<5.0	<5.0	0			
	n-butylbenzene	µg/L	5	<5.0	<5.0	0			
	n-propylbenzene	µg/L	5	<5.0	<5.0	0			
	p-isopropyltoluene	µg/L	5	<5.0	<5.0	0			
	sec-butylbenzene	µg/L	5	<5.0	<5.0	0			
	Styrene	µg/L	5	<5.0	<5.0	0			
	tert-butylbenzene	µg/L	5	<5.0	<5.0	0			
PAH	Acenaphthene	µg/L	1	<1.0	<1.0	0			
	Acenaphthylene	µg/L	1	<1.0	<1.0	0			
	Anthracene	µg/L	1	<1.0	<1.0	0			
	Benz(a)anthracene	µg/L	1	<1.0	<1.0	0			
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	0			
	Benzo(b)fluoranthene	µg/L	1	<1.0	<1.0	0			
	Benzo(a,h,i)perylene	µg/L	1	<1.0	<1.0	0			
	Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0			
	Naphthalene	µg/L	7	<7.0	<7.0	0			
	Naphthalene	µg/L	5	<5.0	<5.0	0			
	Naphthalene	µg/L	1	<1.0	<1.0	0			
	Chrysene	µg/L	1	<1.0	<1.0	0			
	Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	0			
	Fluoranthene	µg/L	1	<1.0	<1.0	0			
Fluorene	µg/L	1	<1.0	<1.0	0				





Method Type	ChemName	Units	EQL	ES1405360			ES1405360			ES1405360		
				Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD	Field_ID	Sampled_Date-Time	RPD
Total Metals by ICP-MS	Arsenic	mg/kg	0.1	15.4	13.5	13	12.1	9.8	21	12.1	9.7	22
	Beryllium	mg/kg	0.1	0.7	1.0	35	0.5	1.0	67	0.5	1.0	67
	Boron	mg/kg	5	99.0	106.0	7	52.0	56.0	7	52.0	52.0	0
	Cadmium	mg/kg	0.1	1.1	0.9	20	0.4	0.4	0	0.4	0.4	0
	Chromium (III+VI)	mg/kg	0.1	18.2	16.1	12	16.4	15.6	5	16.4	15.1	8
	Copper	mg/kg	0.1	28.1	30.6	9	34.9	33.1	5	34.9	33.6	4
	Lead	mg/kg	0.1	15.5	15.3	1	17.6	16.3	8	17.6	17.0	3
	Molybdenum	mg/kg	0.1	4.3	3.1	32	1.4	1.0	33	1.4	0.9	43
	Nickel	mg/kg	0.1	8.3	7.5	10	7.6	7.3	4	7.6	7.1	7
	Selenium	mg/kg	1	2.0	2.0	0	2.0	2.0	0	2.0	2.0	0
	Thallium	mg/kg	0.1	0.2	<0.1	67	0.6	0.2	100	0.6	0.3	67
	Zinc	mg/kg	0.5	86.6	86.1	1	122.0	113.0	8	122.0	119.0	2
Moisture Content	Moisture	%	1	62.5	62.7	0	58.1	58.2	0	58.1	56.2	3
PAH/Phenols (SIM)	2,4,5-trichlorophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2,4,6-trichlorophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2,4-dichlorophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2,4-dimethylphenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2,6-dichlorophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2-chlorophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2-methylphenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	2-nitrophenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	3-&4-methylphenol	mg/kg	1	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	4-chloro-3-methylphenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
	Pentachlorophenol	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0	<2.0	0
	Phenol	mg/kg	0.5	<0.8	<0.8	0	<0.8	<0.8	0	<0.8	<0.8	0
Particle Size Analysis (Sieving)	% >75µm	%	1	6.0	13.0	74	40.0	42.0	5	40.0	40.0	0
	% <75 µm	%	1	51.0	63.0	21	44.0	42.0	5	44.0	44.0	0
	+75µm	%	1	49.0	37.0	28	56.0	58.0	4	56.0	56.0	0
	+150µm	%	1	47.0	33.0	35	53.0	54.0	2	53.0	48.0	10
	+300µm	%	1	45.0	28.0	47	43.0	44.0	2	43.0	43.0	0
	+425µm	%	1	44.0	27.0	48	35.0	36.0	3	35.0	35.0	0
	+600µm	%	1	44.0	26.0	51	29.0	29.0	0	29.0	29.0	0
	+1180µm	%	1	44.0	25.0	55	23.0	22.0	4	23.0	23.0	0
	+2.36mm	%	1	43.0	24.0	57	17.0	16.0	6	17.0	17.0	0
	+4.75mm	%	1	41.0	22.0	60	10.0	9.0	11	10.0	10.0	0
	+9.5mm	%	1	36.0	16.0	77	5.0	<1.0	133	5.0	4.0	22
	+19mm	%	1	19.0	10.0	62	<1.0	<1.0	0	<1.0	<1.0	0
	+37.5mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	+75.0mm	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Cobbles	%	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
	Gravel	%	1	43.0	24.0	57	17.0	16.0	6	17.0	17.0	0
pH Analysis (Sieving)	pH (Lab)	pH Units	0.1	8.4	8.5	1	8.8	8.8	0	8.8	8.8	0
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	2-(acetylamino) fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	2-methylnaphthalene	mg/kg	0.01	0.02	0.02	0	0.03	0.04	29	0.03	0.05	50
	3-methylcholanthrene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	7,12-dimethylbenz(a)anthracene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Acenaphthene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Acenaphthylene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Anthracene	mg/kg	0.01	0.01	<0.01	0	<0.01	<0.01	0	<0.01	0.01	0
	Benzo(a)anthracene	mg/kg	0.01	0.02	0.02	0	0.03	0.02	40	0.03	0.04	29
	Benzo(a) pyrene	mg/kg	0.01	0.02	0.02	0	0.02	0.01	67	0.02	0.03	40
	Benzo(b)fluoranthene	mg/kg	0.01	0.02	0.02	0	0.03	0.02	40	0.03	0.05	50
	Benzo(e)pyrene	mg/kg	0.01	0.02	0.02	0	0.02	0.02	0	0.02	0.03	40
	Benzo(g,h,i)perylene	mg/kg	0.01	0.01	<0.01	0	0.01	<0.01	0	0.01	0.02	67
	Benzo(k)fluoranthene	mg/kg	0.01	0.01	0.01	0	0.01	0.01	0	0.01	0.02	67
	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	mg/kg	0.01	0.03	0.03	0	0.03	0.02	40	0.03	0.05	50
	Carcinogenic PAHs (as B(a)P TEQ (LOR))	mg/kg	0.01	0.04	0.04	0	0.04	0.03	29	0.04	0.05	22
	Naphthalene	mg/kg	0.01 (Primary): 1 (Interlab)	<0.01	<0.01	0	0.01	0.01	0	0.01	<1.0 - 0.02	67
	Chrysene	mg/kg	0.01	0.02	0.02	0	0.03	0.02	40	0.03	0.04	29
	Coronene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Dibenz(a,h)anthracene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Fluoranthene	mg/kg	0.01	0.06	0.05	18	0.05	0.05	0	0.05	0.08	46
	Fluorene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	0.01	0
	Phenanthrene	mg/kg	0.01	0.04	0.04	0	0.05	0.05	0	0.05	0.07	33
	Pyrene	mg/kg	0.01	0.06	0.05	18	0.05	0.05	0	0.05	0.07	33
	Perylene	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	0.01	0
	PAHs (Sum of total)	mg/kg	0.01	0.31	0.27	14	0.34	0.3	13	0.34	0.55	47
	Carcinogenic PAHs (as BaP TEQ)	mg/kg	0.01	0.02	0.02	0	0.03	0.02	40	0.03	0.04	29
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Total Metals by ICP-MS - Suite X	Barium	mg/kg	0.1	8.1	7.2	12	7.8	7.7	1	7.8	6.8	14
	Cobalt	mg/kg	0.1	7.2	6.2	15	9.0	7.7	16	9.0	8.2	9
	Manganese	mg/kg	0.1	296.0	261.0	13	304.0	284.0	7	304.0	283.0	7
	Vanadium	mg/kg	1	44.0	38.0	15	34.0	30.0	13	34.0	29.0	16
Total Organic Carbon	TOC	%	0.02	1.6	1.55	3	0.95	0.94	1	0.95	0.99	4
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C15-C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C29-C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C36 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C16-C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C34-C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	TRH >C10-C40 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TRH >C6-C9 Fraction	mg/kg	10	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	TRH >C6-C10 Fraction	mg/kg	10	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TRH >C6-C10 less BTEX (F1)	mg/kg	10	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Xylene Total	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	1 (Primary): 0.01 (Interlab)	<1.0	<1.0	0						



SDG	ES1406495	ES1406497	ES1406590	ES1406590	ES1406590	ES1406761	ES1406761	ALSE-Sydney 27-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14
Field_ID	R01_240314_SO	R01_240314_JE	R01_250314_SN	R02_250314_SO	R01_250314_CM	R03_260314_SO	R01_260314_SN	R01_260314_SB	R01_280314_SN	R01_310314_SN	R01_010414_SN
Sampled_Date-Time	24/03/2014 15:00	24/03/2014 15:00	25/03/2014 15:00	25/03/2014 15:00	25/03/2014 15:00	26/03/2014 15:00	26/03/2014 14:00	26/03/2014 15:00	28/03/2014 14:00	31/03/2014 14:00	1/04/2014 14:00
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
Method_Type	ChemName	Units	EQL								
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1					<0.1		<0.1	<0.1
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1					<1		<1	<1
	Barium (Filtered)	µg/l	1					<1		<1	<1
	Beryllium (Filtered)	µg/l	1					<1		<1	<1
	Boron (Filtered)	µg/l	50					<50		<50	<50
	Cadmium (Filtered)	µg/l	0.1					<0.1		<0.1	<0.1
	Chromium (III+VI) (Filtered)	µg/l	1					<1		<1	<1
	Cobalt (Filtered)	µg/l	1					<1		<1	<1
	Copper (Filtered)	µg/l	1					<1		<1	<1
	Lead (Filtered)	µg/l	1					<1		<1	<1
	Manganese (Filtered)	µg/l	1					<1		<1	<1
	Molybdenum (Filtered)	µg/l	1					<1		<1	<1
	Nickel (Filtered)	µg/l	1					<1		<1	<1
	Selenium (Filtered)	µg/l	10					<10		<10	<10
	Vanadium (Filtered)	µg/l	10					<10		<10	<10
Zinc (Filtered)	µg/l	5					6		6	6	
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	3-&4-methylphenol	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	
Phenanthrene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	
Pyrene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	
Pentachlorophenol	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenol	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total Mercury by FIMS	Mercury	µg/l	0.0001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Barium	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Beryllium	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Boron	µg/l	50	<50	<50	<50	<50	<50	<50	<50	<50
	Cadmium	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (III+VI)	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Cobalt	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Copper	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Lead	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Manganese	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Molybdenum	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Nickel	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
	Selenium	µg/l	10	<10	<10	<10	<10	<10	<10	<10	<10
	Thallium	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium	µg/l	10	<10	<10	<10	<10	<10	<10	<10	<10	
Zinc	µg/l	5	<5	<5	<5	<5	<5	<5	<5	<5	
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100	
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
Naphthalene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	



SDG	ES1406495	ES1406497	ES1406590	ES1406590	ES1406590	ES1406761	ES1406761	ALSE-Sydney 27-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14
Field_ID	R01_240314_SO	R01_240314_JE	R01_250314_SN	R02_250314_SO	R01_250314_CM	R03_260314_SO	R01_260314_SN	R01_260314_SB	R01_280314_SN	R01_310314_SN	R01_010414_SN
Sampled_Date-Time	24/03/2014 15:00	24/03/2014 15:00	25/03/2014 15:00	25/03/2014 15:00	25/03/2014 15:00	26/03/2014 15:00	26/03/2014 15:00	26/03/2014 15:00	28/03/2014 14:00	31/03/2014 14:00	1/04/2014 14:00
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
Volatle Organic Compounds	1,1,1,2-tetrachloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1,1-trichloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1,2,2-tetrachloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1,2-trichloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1-dichloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1-dichloroethene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,1-dichloropropene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2,3-trichlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2,3-trichloropropane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2,4-trichlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2,4-trimethylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2-dibromo-3-chloropropane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2-dibromoethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2-dichlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2-dichloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,2-dichloropropane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,3,5-trimethylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,3-dichlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,3-dichloropropane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	1,4-dichlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	2,2-dichloropropane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	2-chlorotoluene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Methyl Ethyl Ketone	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	2-hexanone (MBK)	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	4-chlorotoluene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	4-Methyl-2-pentanone	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Bromobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Bromodichloromethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Bromoform	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Bromomethane	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Carbon disulfide	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Carbon tetrachloride	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Naphthalene	µg/L	7	<7	<7	<7	<7	<7	<7	<7	<7
	Chlorobenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Chlorodibromomethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Chloroethane	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Chloroform	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Chloromethane	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	cis-1,2-dichloroethene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	cis-1,3-dichloropropene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	cis-1,4-Dichloro-2-butene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Dibromomethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Dichlorodifluoromethane	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Hexachlorobutadiene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Iodomethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Isopropylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	n-butylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	n-propylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Pentachloroethane	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	p-isopropyltoluene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	sec-butylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Styrene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Trichloroethene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	tert-butylbenzene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Tetrachloroethene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	trans-1,2-dichloroethene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	trans-1,3-dichloropropene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	trans-1,4-Dichloro-2-butene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5
	Trichlorofluoromethane	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Vinyl acetate	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50
	Vinyl chloride	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50



SDG	ES1406140	ES1406275	ES1406277	ES1406278	ES1406280	ES1406339
Field_ID	R01_190314_GP	R01_200314_SB	R01_21.3.14_WG	R01_200314_GP	R01_200314_CM	R01_210314_GP
Sampled_Date-Time	19/03/2014 12:40	20/03/2014 15:00	21/03/2014 8:50	20/03/2014 10:00	20/03/2014 15:00	21/03/2014 12:00
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate

Method_Type	ChemName	Units	EQL						
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1						<0.1
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1						<1
	Barium (Filtered)	µg/l	1						
	Beryllium (Filtered)	µg/l	1						
	Boron (Filtered)	µg/l	50						
	Cadmium (Filtered)	µg/l	0.1						<0.1
	Chromium (III+VI) (Filtered)	µg/l	1						<1
	Cobalt (Filtered)	µg/l	1						
	Copper (Filtered)	µg/l	1						<1
	Lead (Filtered)	µg/l	1						<1
	Manganese (Filtered)	µg/l	1						
	Molybdenum (Filtered)	µg/l	1						
	Nickel (Filtered)	µg/l	1						<1
	Selenium (Filtered)	µg/l	10						
	Thallium (Filtered)	µg/l	1						
	Vanadium (Filtered)	µg/l	10						
	Zinc (Filtered)	µg/l	5						<5
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1	<1	<1	<1
	3-&4-methylphenol	µg/L	2	<2	<2	<2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1	<1	<1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	<1	<1	<1
	Phenanthrene	µg/L	1	<1	<1	<1	<1	<1	<1
	Pyrene	µg/L	1	<1	<1	<1	<1	<1	<1
	Pentachlorophenol	µg/L	2	<2	<2	<2	<2	<2	<2
	PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	µg/L	1	<1	<1	<1	<1	<1	<1
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	µg/L	1	<1					
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1	<0.1	<0.1	<0.1		<0.1
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1	<1	<1	<1		<1
	Barium	µg/l	1						
	Beryllium	µg/l	1						
	Boron	µg/l	50						
	Cadmium	µg/l	0.1	<0.1	<0.1	<0.1	<0.1		<0.1
	Chromium (III+VI)	µg/l	1	<1	<1	40	<1		<1
	Cobalt	µg/l	1						
	Copper	µg/l	1	<1	<1	4	<1		<1
	Lead	µg/l	1	<1	<1	<1	<1		<1
	Manganese	µg/l	1						
	Molybdenum	µg/l	1						
	Nickel	µg/l	1	<1	<1	2	<1		<1
	Selenium	µg/l	10						
	Thallium	µg/l	1						
	Vanadium	µg/l	10						
	Zinc	µg/l	5	<5	<5	<5	<5		<5
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100	<100	<100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100
	TRH >C10-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100	<100
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2	<2	<2	<2
	Naphthalene	µg/L	5	<5	<5	<5	<5	<5	<5



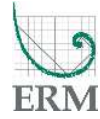


<b>SDG</b>	ES1406496
<b>Field_ID</b>	R01_230314_SN
<b>Sampled_Date-Time</b>	23/03/2014 10:00
<b>Sample_Type</b>	Rinsate

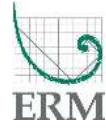
Method_Type	ChemName	Units	EQL	
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1	
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1	
	Barium (Filtered)	µg/l	1	
	Beryllium (Filtered)	µg/l	1	
	Boron (Filtered)	µg/l	50	
	Cadmium (Filtered)	µg/l	0.1	
	Chromium (III+VI) (Filtered)	µg/l	1	
	Cobalt (Filtered)	µg/l	1	
	Copper (Filtered)	µg/l	1	
	Lead (Filtered)	µg/l	1	
	Manganese (Filtered)	µg/l	1	
	Molybdenum (Filtered)	µg/l	1	
	Nickel (Filtered)	µg/l	1	
	Selenium (Filtered)	µg/l	10	
	Thallium (Filtered)	µg/l	1	
	Vanadium (Filtered)	µg/l	10	
	Zinc (Filtered)	µg/l	5	
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1
	2,4,6-trichlorophenol	µg/L	1	<1
	2,4-dichlorophenol	µg/L	1	<1
	2,4-dimethylphenol	µg/L	1	<1
	2,6-dichlorophenol	µg/L	1	<1
	2-chlorophenol	µg/L	1	<1
	2-methylphenol	µg/L	1	<1
	2-nitrophenol	µg/L	1	<1
	3-&4-methylphenol	µg/L	2	<2
	4-chloro-3-methylphenol	µg/L	1	<1
	Acenaphthene	µg/L	1	<1
	Acenaphthylene	µg/L	1	<1
	Anthracene	µg/L	1	<1
	Benz(a)anthracene	µg/L	1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1
	Benzo(k)fluoranthene	µg/L	1	<1
	Naphthalene	µg/L	1	<1
	Chrysene	µg/L	1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1
	Fluoranthene	µg/L	1	<1
	Fluorene	µg/L	1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1
	Phenanthrene	µg/L	1	<1
	Pyrene	µg/L	1	<1
	Pentachlorophenol	µg/L	2	<2
	PAHs (Sum of total)	µg/L	0.5	<0.5
	Phenol	µg/L	1	<1
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	µg/L	1	
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1
	Barium	µg/l	1	<1
	Beryllium	µg/l	1	<1
	Boron	µg/l	50	<50
	Cadmium	µg/l	0.1	<0.1
	Chromium (III+VI)	µg/l	1	6
	Cobalt	µg/l	1	<1
	Copper	µg/l	1	<1
	Lead	µg/l	1	<1
	Manganese	µg/l	1	<1
	Molybdenum	µg/l	1	<1
	Nickel	µg/l	1	<1
	Selenium	µg/l	10	<10
	Thallium	µg/l	1	<1
	Vanadium	µg/l	10	<10
	Zinc	µg/l	5	<5
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100
	TRH >C10-C40 Fraction	µg/L	100	<100
TPH Volatiles/BTEX	Benzene	µg/L	1	<1
	Ethylbenzene	µg/L	2	<2
	Toluene	µg/L	2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20
	Total BTEX	µg/L	1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20
	Xylene (m & p)	µg/L	2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20
	Xylene (o)	µg/L	2	<2
	Xylene Total	µg/L	2	<2
	Naphthalene	µg/L	5	<5



		SDG		ES1405879	ES1405880	ES1405963
		Field_ID	R01_170314_GP	R01_17.03.14_WG	R01_180314_GP	
		Sampled_Date-Time	17/03/2014 16:00	17/03/2014 11:00	18/03/2014 13:45	
		Sample_Type	Rinsate	Rinsate	Rinsate	
Method_Type	ChemName	Units	EQL			
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1
	3-&4-methylphenol	µg/L	2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	
Phenanthrene	µg/L	1	<1	<1	<1	
Pyrene	µg/L	1	<1	<1	<1	
Pentachlorophenol	µg/L	2	<2	<2	<2	
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	
Phenol	µg/L	1	<1	<1	<1	
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	
Total Mercury by FIMS	Mercury	µg/l	0.0001	<0.1	<0.1	<0.1
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	0.001	<1	<1	<1
	Barium	µg/l	1		<1	
	Beryllium	µg/l	1		<1	
	Boron	µg/l	50		<50	
	Cadmium	µg/l	0.0001	<0.1	<0.1	<0.1
	Chromium (III+VI)	µg/l	0.001	<1	<1	<1
	Cobalt	µg/l	1		<1	
	Copper	µg/l	0.001	<1	<1	<1
	Lead	µg/l	0.001	<1	<1	<1
	Manganese	µg/l	1		<1	
	Molybdenum	µg/l	1		<1	
	Nickel	µg/l	0.001	<1	<1	<1
	Selenium	µg/l	10		<10	
	Thallium	µg/l	1		<1	
	Vanadium	µg/l	10		<10	
Zinc	µg/l	0.005	<5	<5	<5	
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100
	TRH >C10-C40 Fraction	µg/L	100	<100	<100	<100
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2
Naphthalene	µg/L	5	<5	<5	<5	
Volatile Organic Compounds	1,1,1,2-tetrachloroethane	µg/L	5			<5
	1,1,1-trichloroethane	µg/L	5			<5
	1,1,2,2-tetrachloroethane	µg/L	5			<5
	1,1,2-trichloroethane	µg/L	5			<5
	1,1-dichloroethane	µg/L	5			<5
	1,1-dichloroethene	µg/L	5			<5
	1,1-dichloropropene	µg/L	5			<5
	1,2,3-trichlorobenzene	µg/L	5			<5
	1,2,3-trichloropropane	µg/L	5			<5
	1,2,4-trichlorobenzene	µg/L	5			<5
	1,2,4-trimethylbenzene	µg/L	5			<5
	1,2-dibromo-3-chloropropane	µg/L	5			<5
	1,2-dibromoethane	µg/L	5			<5
	1,2-dichlorobenzene	µg/L	5			<5
	1,2-dichloroethane	µg/L	5			<5
	1,2-dichloropropane	µg/L	5			<5
	1,3,5-trimethylbenzene	µg/L	5			<5
	1,3-dichlorobenzene	µg/L	5			<5
	1,3-dichloropropane	µg/L	5			<5
	1,4-dichlorobenzene	µg/L	5			<5
	2,2-dichloropropane	µg/L	5			<5
	2-chlorotoluene	µg/L	5			<5
	Methyl Ethyl Ketone	µg/L	50			<50
	2-hexanone (MBK)	µg/L	50			<50
	4-chlorotoluene	µg/L	5			<5
	4-Methyl-2-pentanone	µg/L	50			<50
	Bromobenzene	µg/L	5			<5
	Bromodichloromethane	µg/L	5			<5
	Bromoforn	µg/L	5			<5
	Bromomethane	µg/L	50			<50
	Carbon disulfide	µg/L	5			<5
	Carbon tetrachloride	µg/L	5			<5
	Naphthalene	µg/L	7			<7
	Chlorobenzene	µg/L	5			<5
	Chlorodibromomethane	µg/L	5			<5
	Chloroethane	µg/L	50			<50
	Chloroform	µg/L	5			<5
	Chloromethane	µg/L	50			<50
	cis-1,2-dichloroethene	µg/L	5			<5
	cis-1,3-dichloropropene	µg/L	5			<5
	cis-1,4-Dichloro-2-butene	µg/L	5			<5
	Dibromomethane	µg/L	5			<5
Dichlorodifluoromethane	µg/L	50			<50	
Hexachlorobutadiene	µg/L	5			<5	
Iodomethane	µg/L	5			<5	
Isopropylbenzene	µg/L	5			<5	
n-butylbenzene	µg/L	5			<5	
n-propylbenzene	µg/L	5			<5	
Pentachloroethane	µg/L	5			<5	
p-isopropyltoluene	µg/L	5			<5	
sec-butylbenzene	µg/L	5			<5	
Styrene	µg/L	5			<5	
Trichloroethene	µg/L	5			<5	
tert-butylbenzene	µg/L	5			<5	
Tetrachloroethene	µg/L	5			<5	
trans-1,2-dichloroethene	µg/L	5			<5	
trans-1,3-dichloropropene	µg/L	5			<5	
trans-1,4-Dichloro-2-butene	µg/L	5			<5	
Trichlorofluoromethane	µg/L	50			<50	
Vinyl acetate	µg/L	50			<50	
Vinyl chloride	µg/L	50			<50	



SDG	ES1405525	ES1405525	ES1405527	ES1405660	ES1405660	ES1405673	ES1405738	ES1405739
Field_ID	R01_120314_GP	R01_120314_CM	R01_120314	R01_130314_GP	R01_130314_CM	R01_130314_JD	R01_140314_GP	R01_140314_SB
Sample Date-Time	12/03/2014 15:20	12/03/2014 10:50	12/03/2014 15:00	13/03/2014 11:35	13/03/2014 15:00	13/03/2014 15:00	14/03/2014 16:00	14/03/2014 15:00
Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
<b>Method Type</b>	<b>ChemName</b>	<b>Units</b>	<b>EQL</b>					
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1		<0.1		<0.1	
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1		<1		<1	
	Cadmium (Filtered)	µg/l	0.1		<0.1		<0.1	
	Chromium (III+VI) (Filtered)	µg/l	1		<1		<1	
	Copper (Filtered)	µg/l	1		<1		<1	
	Lead (Filtered)	µg/l	1		<1		<1	
	Nickel (Filtered)	µg/l	1		<1		<1	
	Zinc (Filtered)	µg/l	5		<5		<5	
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1	<1	<1
	3-&4-methylphenol	µg/L	2	<2	<2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	<1	<1
	Phenanthrene	µg/L	1	<1	<1	<1	<1	<1
	Pyrene	µg/L	1	<1	<1	<1	<1	<1
	Pentachlorophenol	µg/L	2	<2	<2	<2	<2	<2
	PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	µg/L	1	<1	<1	<1	<1	<1
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1	<1	<1	<1	<1
	Barium	µg/l	1	<1	<1	<1	<1	<1
	Beryllium	µg/l	1	<1	<1	<1	<1	<1
	Boron	µg/l	50	<50	<50	<50	<50	<50
	Cadmium	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (III+VI)	µg/l	1	<1	<1	<1	<1	<1
	Cobalt	µg/l	1	<1	<1	<1	<1	<1
	Copper	µg/l	1	<1	<1	<1	<1	<1
	Lead	µg/l	1	<1	<1	<1	<1	<1
	Manganese	µg/l	1	<1	<1	<1	<1	<1
	Molybdenum	µg/l	1	<1	<1	<1	<1	<1
	Nickel	µg/l	1	<1	<1	<1	<1	<1
	Selenium	µg/l	10	<10	<10	<10	<10	<10
	Thallium	µg/l	1	<1	<1	<1	<1	<1
	Vanadium	µg/l	10	<10	<10	<10	<10	<10
	Zinc	µg/l	5	<5	<5	<5	<5	<5
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50	<50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100	<100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50	<50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100	<100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100	<100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100	<100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100
	TRH >C10-C40 Fraction	µg/L	100	<100	<100	<100	<100	<100
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2	<2	<2
	Naphthalene	µg/L	5	<5	<5	<5	<5	<5



SDG	ES1405227	ES1405227	ES1405227	ES1405359	ES1405362
Field_ID	R01_100314_GP	R01_100314_CM	R01_100314_SB	R01_110314_JD	R01_110314_GP
Sampled_Date-Time	10/03/2014 13:50	10/03/2014 15:00	10/03/2014 16:30	11/03/2014 15:00	11/03/2014 15:00
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate

Method_Type	ChemName	Units	EQL					
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1	<1	<1
	3-84-methylphenol	µg/L	2	<2	<2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	<1	<1
Phenanthrene	µg/L	1	<1	<1	<1	<1	<1	
Pyrene	µg/L	1	<1	<1	<1	<1	<1	
Pentachlorophenol	µg/L	2	<2	<2	<2	<2	<2	
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenol	µg/L	1	<1	<1	<1	<1	<1	
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Polychlorinated Biphenyls (PCB)	PCBs (Sum of total)	µg/L	1				<1	
Total Mercury by FIMS	Mercury	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1	<1	<1	<1	<1	
	Barium	µg/l	1			5	<1	
	Beryllium	µg/l	1			<1	<1	
	Boron	µg/l	50			<50	<50	
	Cadmium	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	
	Chromium (III+VI)	µg/l	1	<1	<1	<1	<1	
	Cobalt	µg/l	1			<1	<1	
	Copper	µg/l	1	<1	<1	<1	<1	
	Lead	µg/l	1	<1	<1	<1	<1	
	Manganese	µg/l	1			<1	<1	
	Molybdenum	µg/l	1			<1	<1	
	Nickel	µg/l	1	<1	<1	<1	<1	
	Selenium	µg/l	10			<10	<10	
Thallium	µg/l	1			<1	<1		
Vanadium	µg/l	10			<10	<10		
Zinc	µg/l	5	62	<5	9	<5	<5	
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50	<50	
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100	<100	
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50	<50	
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50	<50	
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100	<100	
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100	<100	
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100	<100	
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100	<100	
TRH >C10-C40 Fraction	µg/L	100	<100	<100	<100	<100		
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1	
	Ethylbenzene	µg/L	2	<2	<2	<2	<2	
	Toluene	µg/L	2	<2	<2	<2	<2	
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	
	Total BTEX	µg/L	1	<1	<1	<1	<1	
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20	
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2	
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20	
	Xylene (o)	µg/L	2	<2	<2	<2	<2	
	Xylene Total	µg/L	2	<2	<2	<2	<2	
Naphthalene	µg/L	5	<5	<5	<5	<5		



	SDG	Field_ID	Sampled_Date-Time	Sample_Type	ES1405227	ES1405227	ES1405227	ES1405359	ES1405362
					R01_100314_GP 10/03/2014 13:50 Rinsate	R01_100314_CM 10/03/2014 15:00 Rinsate	R01_100314_SB 10/03/2014 16:30 Rinsate	R01_110314_JD 11/03/2014 15:00 Rinsate	R01_110314_GP 11/03/2014 15:00 Rinsate
Volatile Organic Compounds									
		1,1,1,2-tetrachloroethane	µg/L	5	<5				<5
		1,1,1-trichloroethane	µg/L	5	<5				<5
		1,1,2,2-tetrachloroethane	µg/L	5	<5				<5
		1,1,2-trichloroethane	µg/L	5	<5				<5
		1,1-dichloroethane	µg/L	5	<5				<5
		1,1-dichloroethene	µg/L	5	<5				<5
		1,1-dichloropropene	µg/L	5	<5				<5
		1,2,3-trichlorobenzene	µg/L	5	<5				<5
		1,2,3-trichloropropane	µg/L	5	<5				<5
		1,2,4-trichlorobenzene	µg/L	5	<5				<5
		1,2,4-trimethylbenzene	µg/L	5	<5				<5
		1,2-dibromo-3-chloropropane	µg/L	5	<5				<5
		1,2-dibromoethane	µg/L	5	<5				<5
		1,2-dichlorobenzene	µg/L	5	<5				<5
		1,2-dichloroethane	µg/L	5	<5				<5
		1,2-dichloropropane	µg/L	5	<5				<5
		1,3,5-trimethylbenzene	µg/L	5	<5				<5
		1,3-dichlorobenzene	µg/L	5	<5				<5
		1,3-dichloropropane	µg/L	5	<5				<5
		1,4-dichlorobenzene	µg/L	5	<5				<5
		2,2-dichloropropane	µg/L	5	<5				<5
		2-chlorotoluene	µg/L	5	<5				<5
		Methyl Ethyl Ketone	µg/L	50	<50				<50
		2-hexanone (MBK)	µg/L	50	<50				<50
		4-chlorotoluene	µg/L	5	<5				<5
		4-Methyl-2-pentanone	µg/L	50	<50				<50
		Bromobenzene	µg/L	5	<5				<5
		Bromodichloromethane	µg/L	5	<5				<5
		Bromoform	µg/L	5	<5				<5
		Bromomethane	µg/L	50	<50				<50
		Carbon disulfide	µg/L	5	<5				<5
		Carbon tetrachloride	µg/L	5	<5				<5
		Naphthalene	µg/L	7	<7				<7
		Chlorobenzene	µg/L	5	<5				<5
		Chlorodibromomethane	µg/L	5	<5				<5
		Chloroethane	µg/L	50	<50				<50
		Chloroform	µg/L	5	<5				<5
		Chloromethane	µg/L	50	<50				<50
		cis-1,2-dichloroethene	µg/L	5	<5				<5
		cis-1,3-dichloropropene	µg/L	5	<5				<5
		cis-1,4-Dichloro-2-butene	µg/L	5	<5				<5
		Dibromomethane	µg/L	5	<5				<5
		Dichlorodifluoromethane	µg/L	50	<50				<50
		Hexachlorobutadiene	µg/L	5	<5				<5
		Iodomethane	µg/L	5	<5				<5
		Isopropylbenzene	µg/L	5	<5				<5
		n-butylbenzene	µg/L	5	<5				<5
		n-propylbenzene	µg/L	5	<5				<5
		Pentachloroethane	µg/L	5	<5				<5
		p-isopropyltoluene	µg/L	5	<5				<5
		sec-butylbenzene	µg/L	5	<5				<5
		Styrene	µg/L	5	<5				<5
		Trichloroethene	µg/L	5	<5				<5
		tert-butylbenzene	µg/L	5	<5				<5
		Tetrachloroethene	µg/L	5	<5				<5
		trans-1,2-dichloroethene	µg/L	5	<5				<5
		trans-1,3-dichloropropene	µg/L	5	<5				<5
		trans-1,4-Dichloro-2-butene	µg/L	5	<5				<5
		Trichlorofluoromethane	µg/L	50	<50				<50
		Vinyl acetate	µg/L	50	<50				<50
		Vinyl chloride	µg/L	50	<50				<50



SDG	ES1404400	ES1404881	ES1405121	ES1405121
Field_ID	R01_270214	R01_040314	R01_070314_GP	R01_070314_SB
Sampled_Date-Time	27/02/2014 15:00	4/03/2014 15:00	7/03/2014 14:15	7/03/2014 15:00
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate

Method_Type	ChemName	Units	EQL				
Dissolved Mercury by FIMS	Mercury (Filtered)	µg/l	0.1	<0.1	<0.1		
Dissolved Metals by ICP-MS - Suite A	Arsenic (Filtered)	µg/l	1	<1	<1		
	Cadmium (Filtered)	µg/l	0.1	<0.1	<0.1		
	Chromium (III+VI) (Filtered)	µg/l	1	<1	<1		
	Copper (Filtered)	µg/l	1	<1	<1		
	Lead (Filtered)	µg/l	1	<1	<1		
	Nickel (Filtered)	µg/l	1	<1	<1		
	Zinc (Filtered)	µg/l	5	6	23		
PAH/Phenols (GC/MS - SIM)	2,4,5-trichlorophenol	µg/L	1	<1	<1	<1	<1
	2,4,6-trichlorophenol	µg/L	1	<1	<1	<1	<1
	2,4-dichlorophenol	µg/L	1	<1	<1	<1	<1
	2,4-dimethylphenol	µg/L	1	<1	<1	<1	<1
	2,6-dichlorophenol	µg/L	1	<1	<1	<1	<1
	2-chlorophenol	µg/L	1	<1	<1	<1	<1
	2-methylphenol	µg/L	1	<1	<1	<1	<1
	2-nitrophenol	µg/L	1	<1	<1	<1	<1
	3-&4-methylphenol	µg/L	2	<2	<2	<2	<2
	4-chloro-3-methylphenol	µg/L	1	<1	<1	<1	<1
	Acenaphthene	µg/L	1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1	<1	<1	<1	<1
	Anthracene	µg/L	1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1	<1	<1	<1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1	<1	<1	<1	<1
	Naphthalene	µg/L	1	<1	<1	<1	<1
	Chrysene	µg/L	1	<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	<1	<1
	Fluoranthene	µg/L	1	<1	<1	<1	<1
	Fluorene	µg/L	1	<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	<1	<1
	Phenanthrene	µg/L	1	<1	<1	<1	<1
	Pyrene	µg/L	1	<1	<1	<1	<1
	Pentachlorophenol	µg/L	2	<2	<2	<2	<2
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	
Phenol	µg/L	1	<1	<1	<1	<1	
Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	
Total Mercury by FIMS	Mercury	µg/l	0.1		<0.1	<0.1	
Total Metals by ICP-MS - Suite A	Arsenic	µg/l	1		<1	<1	
	Barium	µg/l	1			1	
	Beryllium	µg/l	1			<1	
	Boron	µg/l	50			<50	
	Cadmium	µg/l	0.1			<0.1	<0.1
	Chromium (III+VI)	µg/l	1			<1	<1
	Cobalt	µg/l	1			<1	<1
	Copper	µg/l	1			<1	<1
	Lead	µg/l	1			<1	<1
	Manganese	µg/l	1			<1	<1
	Nickel	µg/l	1			<1	<1
	Selenium	µg/l	10			<10	<10
	Vanadium	µg/l	10			<10	<10
	Zinc	µg/l	5			<5	50
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	µg/L	50	<50	<50	<50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100	<100	<100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50	<50	<50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50	<50	<50	<50
	TRH >C10-C16 Fraction	µg/L	100	<100	<100	<100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100	<100	<100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100	<100	<100	<100
	TRH >C34-C40 Fraction	µg/L	100	<100	<100	<100	<100
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2	<2
	Naphthalene	µg/L	5	<5	<5	<5	<5
Volatile Organic Compounds	1,1,1,2-tetrachloroethane	µg/L	5	<5		<5	
	1,1,1-trichloroethane	µg/L	5	<5		<5	
	1,1,2,2-tetrachloroethane	µg/L	5	<5		<5	
	1,1,2-trichloroethane	µg/L	5	<5		<5	
	1,1-dichloroethane	µg/L	5	<5		<5	
	1,1-dichloroethene	µg/L	5	<5		<5	
	1,1-dichloropropene	µg/L	5	<5		<5	
	1,2,3-trichlorobenzene	µg/L	5	<5		<5	
	1,2,3-trichloropropane	µg/L	5	<5		<5	
	1,2,4-trichlorobenzene	µg/L	5	<5		<5	
	1,2,4-trimethylbenzene	µg/L	5	<5		<5	
	1,2-dibromo-3-chloropropane	µg/L	5	<5		<5	
	1,2-dibromoethane	µg/L	5	<5		<5	
	1,2-dichlorobenzene	µg/L	5	<5		<5	
	1,2-dichloroethane	µg/L	5	<5		<5	
	1,2-dichloropropane	µg/L	5	<5		<5	
	1,3,5-trimethylbenzene	µg/L	5	<5		<5	
	1,3-dichlorobenzene	µg/L	5	<5		<5	
	1,3-dichloropropane	µg/L	5	<5		<5	
	1,4-dichlorobenzene	µg/L	5	<5		<5	
	2,2-dichloropropane	µg/L	5	<5		<5	
	2-chlorotoluene	µg/L	5	<5		<5	
	Methyl Ethyl Ketone	µg/L	50	<50		<50	
	2-hexanone (MBK)	µg/L	50	<50		<50	
	4-chlorotoluene	µg/L	5	<5		<5	
	4-Methyl-2-pentanone	µg/L	50	<50		<50	
	Bromobenzene	µg/L	5	<5		<5	
	Bromodichloromethane	µg/L	5	<5		<5	
	Bromoform	µg/L	5	<5		<5	
Bromomethane	µg/L	50	<50		<50		
Carbon disulfide	µg/L	5	<5		<5		
Carbon tetrachloride	µg/L	5	<5		<5		
Naphthalene	µg/L	7			<7		
Chlorobenzene	µg/L	5	<5		<5		
Chlorodibromomethane	µg/L	5	<5		<5		
Chloroethane	µg/L	50	<50		<50		





			SDG	ES1404400	ES1404881	ES1405121	ES1405121
			Field_ID	R01_270214	R01_040314	R01_070314_GP	R01_070314_SB
			Sampled_Date-Time	27/02/2014 15:00	4/03/2014 15:00	7/03/2014 14:15	7/03/2014 15:00
			Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate
	Chloroform	µg/L	5	<5		<5	
	Chloromethane	µg/L	50	<50		<50	
	cis-1,2-dichloroethene	µg/L	5	<5		<5	
	cis-1,3-dichloropropene	µg/L	5	<5		<5	
	cis-1,4-Dichloro-2-butene	µg/L	5	<5		<5	
	Dibromomethane	µg/L	5	<5		<5	
	Dichlorodifluoromethane	µg/L	50	<50		<50	
	Hexachlorobutadiene	µg/L	5	<5		<5	
	Iodomethane	µg/L	5	<5		<5	
	Isopropylbenzene	µg/L	5	<5		<5	
	n-butylbenzene	µg/L	5	<5		<5	
	n-propylbenzene	µg/L	5	<5		<5	
	Pentachloroethane	µg/L	5	<5		<5	
	p-isopropyltoluene	µg/L	5	<5		<5	
	sec-butylbenzene	µg/L	5	<5		<5	
	Styrene	µg/L	5	<5		<5	
	Trichloroethene	µg/L	5	<5		<5	
	tert-butylbenzene	µg/L	5	<5		<5	
	Tetrachloroethene	µg/L	5	<5		<5	
	trans-1,2-dichloroethene	µg/L	5	<5		<5	
	trans-1,3-dichloropropene	µg/L	5	<5		<5	
	trans-1,4-Dichloro-2-butene	µg/L	5	<5		<5	
	Trichlorofluoromethane	µg/L	50	<50		<50	
	Vinyl acetate	µg/L	50	<50		<50	
	Vinyl chloride	µg/L	50	<50		<50	

<b>SDG</b>	ALSE-Sydney 27-May-14
<b>Field_ID</b>	R01_270514
<b>Sampled_Date-Time</b>	27/05/2014 15:00
<b>Sample_Type</b>	Rinsate

Chem_Group	ChemName	Units	EQL	
BTEX	Benzene	µg/L	1	<1
	Ethylbenzene	µg/L	2	<2
	Toluene	µg/L	2	<2
	Total BTEX	µg/L	1	<1
	Xylene (m & p)	µg/L	2	<2
	Xylene (o)	µg/L	2	<2
	Xylene Total	µg/L	2	<2
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	µg/L	5	<5
	1,1,1-trichloroethane	µg/L	5	<5
	1,1,2,2-tetrachloroethane	µg/L	5	<5
	1,1,2-trichloroethane	µg/L	5	<5
	1,1-dichloroethane	µg/L	5	<5
	1,1-dichloroethene	µg/L	5	<5
	1,1-dichloropropene	µg/L	5	<5
	1,2,3-trichloropropane	µg/L	5	<5
	1,2-dibromo-3-chloropropane	µg/L	5	<5
	1,2-dichloroethane	µg/L	5	<5
	1,2-dichloropropane	µg/L	5	<5
	1,3-dichloropropane	µg/L	5	<5
	2,2-dichloropropane	µg/L	5	<5
	Bromodichloromethane	µg/L	5	<5
	Bromoform	µg/L	5	<5
	Carbon tetrachloride	µg/L	5	<5
	Chlorodibromomethane	µg/L	5	<5
	Chloroethane	µg/L	50	<50
	Chloroform	µg/L	5	<5
	Chloromethane	µg/L	50	<50
	cis-1,2-dichloroethene	µg/L	5	<5
	cis-1,3-dichloropropene	µg/L	5	<5
	Dibromomethane	µg/L	5	<5
Hexachlorobutadiene	µg/L	5	<5	
Trichloroethene	µg/L	5	<5	
Tetrachloroethene	µg/L	5	<5	
trans-1,2-dichloroethene	µg/L	5	<5	
trans-1,3-dichloropropene	µg/L	5	<5	
Vinyl chloride	µg/L	0.3	<50	
Halogenated Benzenes	1,2,3-trichlorobenzene	µg/L	5	<5
	1,2,4-trichlorobenzene	µg/L	5	<5
	1,2-dichlorobenzene	µg/L	5	<5
	1,3-dichlorobenzene	µg/L	5	<5
	1,4-dichlorobenzene	µg/L	5	<5
	2-chlorotoluene	µg/L	5	<5
	4-chlorotoluene	µg/L	5	<5
	Bromobenzene	µg/L	5	<5
	Chlorobenzene	µg/L	5	<5
Halogenated Hydrocarbons	1,2-dibromoethane	µg/L	5	<5
	Bromomethane	µg/L	50	<50
	Dichlorodifluoromethane	µg/L	50	<50
	Iodomethane	µg/L	5	<5
	Trichlorofluoromethane	µg/L	50	<50
MAH	1,2,4-trimethylbenzene	µg/L	5	<5
	1,3,5-trimethylbenzene	µg/L	5	<5
	Isopropylbenzene	µg/L	5	<5
	n-butylbenzene	µg/L	5	<5
	n-propylbenzene	µg/L	5	<5
	p-isopropyltoluene	µg/L	5	<5
	sec-butylbenzene	µg/L	5	<5
	Styrene	µg/L	5	<5
	tert-butylbenzene	µg/L	5	<5
Metals	Arsenic	µg/l	1	<1
	Arsenic (Filtered)	µg/l	1	
	Barium (Filtered)	µg/l	1	
	Beryllium (Filtered)	µg/l	1	
	Boron (Filtered)	µg/l	50	
	Cadmium	µg/l	0.1	<0.1
	Cadmium (Filtered)	µg/l	0.1	
	Chromium (III+VI)	µg/l	1	<1
	Chromium (III+VI) (Filtered)	µg/l	1	
	Cobalt (Filtered)	µg/l	1	
	Copper	µg/l	1	<1
	Copper (Filtered)	µg/l	1	
	Lead	µg/l	1	<1
	Lead (Filtered)	µg/l	1	
	Manganese (Filtered)	µg/l	1	
	Mercury	µg/l	0.1	<0.1
	Mercury (Filtered)	µg/l	0.1	
	Nickel	µg/l	1	<1
	Nickel (Filtered)	µg/l	1	
	Selenium (Filtered)	µg/l	10	
Vanadium (Filtered)	µg/l	10		
Zinc	µg/l	5	<5	
Zinc (Filtered)	µg/l	5		
PAH	Acenaphthene	µg/L	1	<1
	Acenaphthylene	µg/L	1	<1
	Anthracene	µg/L	1	<1
	Benz(a)anthracene	µg/L	1	<1
	Benzo(a) pyrene	µg/L	0.5	<0.5
	Benzo(b)fluoranthene	µg/L	1	<1
	Benzo(g,h,i)perylene	µg/L	1	<1
	Benzo(k)fluoranthene	µg/L	1	<1
	Naphthalene	µg/L	1	<7
	Chrysene	µg/L	1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1
	Fluoranthene	µg/L	1	<1
	Fluorene	µg/L	1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1
	Phenanthrene	µg/L	1	<1
	Pyrene	µg/L	1	<1
	PAHs (Sum of total)	µg/L	0.5	<0.5
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	<0.5

			SDG Field_ID Sampled_Date-Time Sample_Type	ALSE-Sydney 27-May-14 R01_270514 27/05/2014 15:00 Rinsate
PFOS/PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	
	Perfluorooctanoate	µg/L	0.02	
	PFOS	µg/L	0.02	
Phenols	2,4,5-trichlorophenol	µg/L	1	<1
	2,4,6-trichlorophenol	µg/L	1	<1
	2,4-dichlorophenol	µg/L	1	<1
	2,4-dimethylphenol	µg/L	1	<1
	2,6-dichlorophenol	µg/L	1	<1
	2-chlorophenol	µg/L	1	<1
	2-methylphenol	µg/L	1	<1
	2-nitrophenol	µg/L	1	<1
	3-&4-methylphenol	µg/L	2	<2
	4-chloro-3-methylphenol	µg/L	1	<1
	Pentachlorophenol	µg/L	2	<2
	Phenol	µg/L	1	<1
Polychlorinated Biphenyls	PCBs (Sum of total)	µg/L	1	<1
Solvents	Methyl Ethyl Ketone	µg/L	50	<50
	2-hexanone (MBK)	µg/L	50	<50
	4-Methyl-2-pentanone	µg/L	50	<50
	Carbon disulfide	µg/L	5	<5
	Vinyl acetate	µg/L	50	<50
TRH	TRH >C6-C9 Fraction	µg/L	20	<20
	TRH >C10-C14 Fraction	µg/L	50	<50
	TRH >C15-C28 Fraction	µg/L	100	<100
	TRH >C29-C36 Fraction	µg/L	50	<50
	TRH >C10-C36 Fraction	µg/L	50	<50
	TRH >C6-C10 Fraction	µg/L	20	<20
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20
	TRH >C10-C16 Fraction	µg/L	100	<100
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	<100
	TRH >C16-C34 Fraction	µg/L	100	<100
TRH >C34-C40 Fraction	µg/L	100	<100	
TRH >C10-C40 Fraction	µg/L	100	<100	
VOCs	cis-1,4-Dichloro-2-butene	µg/L	5	<5
	Pentachloroethane	µg/L	5	<5
	trans-1,4-Dichloro-2-butene	µg/L	5	<5



SDG	ES1406497	ES1406590	ES1406590	ALSE-Sydney 28-Mar-14	ALSE-Sydney 02-Apr-14	ES1406140	ES1406280	ES1406339	ES1405876	ES1405675	ES1405738	ES1405227
Field_ID	TRIP BLANK 7	TB4	TB6	TRIP BLANK 1	TB	TRIP BLANK	BLK	BLK	TRIP BLANK	TRIP BLANK 6	TRIP BLANK	T BLANK
Sampled_Date-Time	24/03/2014 15:00	25/03/2014 15:00	25/03/2014 15:00	26/03/2014 15:00	26/03/2014 15:00	19/03/2014 15:00	18/03/2014 15:00	18/03/2014 15:00	17/03/2014 15:00	13/03/2014 15:00	14/03/2014 15:00	10/03/2014 15:00
Sample_Type	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B

Method_Type	ChemName	Units	EQL												
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50												
	TRH >C15-C28 Fraction	mg/kg	100												
	TRH >C29-C36 Fraction	mg/kg	100												
	TRH >C10-C36 Fraction	mg/kg	50												
	TRH >C10-C16 Fraction	mg/kg	50												
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50												
	TRH >C16-C34 Fraction	mg/kg	100												
	TRH >C34-C40 Fraction	mg/kg	100												
	TRH >C10-C40 Fraction	mg/kg	50												
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Toluene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C9 Fraction	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	TRH >C6-C10 Fraction	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C10 less BTEX (F1)	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Xylene Total	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1



SDG	ES1405362	ES1405526	ES1404115	ES1404400	ES1404580	ES1404881	ES1405121
Field_ID	TRIP BLANK	TRIP BLANK	T.BLK	BLANK	BLK	BLK	TRIP BLANK 18
Sampled_Date-Time	10/03/2014 15:00	12/03/2014 15:00	25/02/2014 15:00	25/02/2014 15:00	25/02/2014 15:00	25/02/2014 15:00	7/03/2014 15:00
Sample_Type	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B

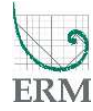
Method_Type	ChemName	Units	EQL							
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50							<50
	TRH >C15-C28 Fraction	mg/kg	100							<100
	TRH >C29-C36 Fraction	mg/kg	100							<100
	TRH >C10-C36 Fraction	mg/kg	50							<50
	TRH >C10-C16 Fraction	mg/kg	50							<50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50							<50
	TRH >C16-C34 Fraction	mg/kg	100							<100
	TRH >C34-C40 Fraction	mg/kg	100							<100
	TRH >C10-C40 Fraction	mg/kg	50							<50
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Toluene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C9 Fraction	mg/kg	10	<10	<10	<10	<10	<10	<10	<10
	Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	TRH >C6-C10 Fraction	mg/kg	10	<10	<10	<10	<10	<10	<10	<10
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C10 less BTEX (F1)	mg/kg	10	<10	<10	<10	<10	<10	<10	<10
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Xylene Total	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	1	<1	<1	<1	<1	<1	<1	<1



SDG	ES1405360	ES1405527	ES1405672	ES1405740
Field_ID	TB	TRIP BLANK	TRIP BLANK	TRIP BLANK9
Sampled_Date-Time	11/03/2014 15:00	13/03/2014 15:00	13/03/2014 15:00	14/03/2014 15:00
Sample_Type	Trip_B	Trip_B	Trip_B	Trip_B

Method_Type	ChemName	Units	EQL				
TPH - Semivolatile Fraction	TRH >C10-C14 Fraction	mg/kg	50	<50			
	TRH >C15-C28 Fraction	mg/kg	100	<100			
	TRH >C29-C36 Fraction	mg/kg	100	<100			
	TRH >C10-C36 Fraction	mg/kg	50	<50			
	TRH >C10-C16 Fraction	mg/kg	50	<50			
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50			
	TRH >C16-C34 Fraction	mg/kg	100	<100			
	TRH >C34-C40 Fraction	mg/kg	100	<100			
	TRH >C10-C40 Fraction	mg/kg	50	<50			
TPH Volatiles/BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Toluene	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C9 Fraction	mg/kg	10	<10	<10	<10	<10
	Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
	TRH >C6-C10 Fraction	mg/kg	10	<10	<10	<10	<10
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
	TRH >C6-C10 less BTEX (F1)	mg/kg	10	<10	<10	<10	<10
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Xylene Total	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	mg/kg	1	<1	<1	<1	<1	





SDG	ES1406495	ES1406761	ALSE-Sydney 28-Mar-14	ALSE-Sydney 28-Mar-14	ALSE-Sydney 31-Mar-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ALSE-Sydney 02-Apr-14	ES1406274	ES1406281	ES1405963	ES1405673	ES1405359
Field_ID	TRIP BLANK	TRIP BLANK	TB2	TB7	TRIP BLANK	TRIP BLANK	TB3	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TB 3	TB (2)	TB1
Sampled_Date-Time	24/03/2014 15:00	26/03/2014 15:00	27/03/2014 15:00	27/03/2014 15:00	28/03/2014 15:00	2/04/2014 15:00	1/04/2014 15:00	1/04/2014 15:00	1/04/2014 15:00	21/03/2014 15:00	20/03/2014 15:00	18/03/2014 15:00	13/03/2014 15:00	11/03/2014 15:00
Sample_Type	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B
Method_Type	ChemName	Units	EQL											
TPH Volatiles/BTEX	Benzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Toluene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	TRH >C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Total BTEX	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C6-C10 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Xylene (m & p)	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	TRH >C6-C10 less BTEX (F1)	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Xylene (o)	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene Total	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Naphthalene	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

<b>SDG</b>	ALSE-Sydney 27-May-14
<b>Field_ID</b>	TB 1
<b>Sampled_Date-Time</b>	26/05/2014 15:00
<b>Sample_Type</b>	Trip_B

Chem_Group	ChemName	Units	EQL	
BTEX	Benzene	µg/L	1	<1
	Ethylbenzene	µg/L	2	<2
	Toluene	µg/L	2	<2
	Total BTEX	µg/L	1	<1
	Xylene (m & p)	µg/L	2	<2
	Xylene (o)	µg/L	2	<2
	Xylene Total	µg/L	2	<2
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	µg/L	5	<5
	1,1,1-trichloroethane	µg/L	5	<5
	1,1,2,2-tetrachloroethane	µg/L	5	<5
	1,1,2-trichloroethane	µg/L	5	<5
	1,1-dichloroethane	µg/L	5	<5
	1,1-dichloroethene	µg/L	5	<5
	1,1-dichloropropene	µg/L	5	<5
	1,2,3-trichloropropane	µg/L	5	<5
	1,2-dibromo-3-chloropropane	µg/L	5	<5
	1,2-dichloroethane	µg/L	5	<5
	1,2-dichloropropane	µg/L	5	<5
	1,3-dichloropropane	µg/L	5	<5
	2,2-dichloropropane	µg/L	5	<5
	Bromodichloromethane	µg/L	5	<5
	Bromoform	µg/L	5	<5
	Carbon tetrachloride	µg/L	5	<5
	Chlorodibromomethane	µg/L	5	<5
	Chloroethane	µg/L	50	<50
	Chloroform	µg/L	5	<5
	Chloromethane	µg/L	50	<50
	cis-1,2-dichloroethene	µg/L	5	<5
	cis-1,3-dichloropropene	µg/L	5	<5
	Dibromomethane	µg/L	5	<5
	Hexachlorobutadiene	µg/L	5	<5
Trichloroethene	µg/L	5	<5	
Tetrachloroethene	µg/L	5	<5	
trans-1,2-dichloroethene	µg/L	5	<5	
trans-1,3-dichloropropene	µg/L	5	<5	
Vinyl chloride	µg/L	0.3	<50	
Halogenated Benzenes	1,2,3-trichlorobenzene	µg/L	5	<5
	1,2,4-trichlorobenzene	µg/L	5	<5
	1,2-dichlorobenzene	µg/L	5	<5
	1,3-dichlorobenzene	µg/L	5	<5
	1,4-dichlorobenzene	µg/L	5	<5
	2-chlorotoluene	µg/L	5	<5
	4-chlorotoluene	µg/L	5	<5
	Bromobenzene	µg/L	5	<5
	Chlorobenzene	µg/L	5	<5
	Halogenated Hydrocarbons	1,2-dibromoethane	µg/L	5
Bromomethane		µg/L	50	<50
Dichlorodifluoromethane		µg/L	50	<50
Iodomethane		µg/L	5	<5
Trichlorofluoromethane		µg/L	50	<50
MAH	1,2,4-trimethylbenzene	µg/L	5	
	1,3,5-trimethylbenzene	µg/L	5	
	Isopropylbenzene	µg/L	5	
	n-butylbenzene	µg/L	5	
	n-propylbenzene	µg/L	5	
	p-isopropyltoluene	µg/L	5	
	sec-butylbenzene	µg/L	5	
	Styrene	µg/L	5	
tert-butylbenzene	µg/L	5		
Metals	Arsenic	µg/l	1	
	Arsenic (Filtered)	µg/l	1	
	Barium (Filtered)	µg/l	1	
	Beryllium (Filtered)	µg/l	1	
	Boron (Filtered)	µg/l	50	
	Cadmium	µg/l	0.1	
	Cadmium (Filtered)	µg/l	0.1	
	Chromium (III+VI)	µg/l	1	
	Chromium (III+VI) (Filtered)	µg/l	1	
	Cobalt (Filtered)	µg/l	1	
	Copper	µg/l	1	
	Copper (Filtered)	µg/l	1	
	Lead	µg/l	1	
	Lead (Filtered)	µg/l	1	
	Manganese (Filtered)	µg/l	1	
	Mercury	µg/l	0.1	
	Mercury (Filtered)	µg/l	0.1	
	Nickel	µg/l	1	
	Nickel (Filtered)	µg/l	1	
Selenium (Filtered)	µg/l	10		
Vanadium (Filtered)	µg/l	10		
Zinc	µg/l	5		
Zinc (Filtered)	µg/l	5		

			SDG	ALSE-Sydney 27-May-14
			Field_ID	TB 1
			Sampled_Date-Time	26/05/2014 15:00
			Sample_Type	Trip_B
PAH	Acenaphthene	µg/L	1	
	Acenaphthylene	µg/L	1	
	Anthracene	µg/L	1	
	Benz(a)anthracene	µg/L	1	
	Benzo(a) pyrene	µg/L	0.5	
	Benzo(b)fluoranthene	µg/L	1	
	Benzo(g,h,i)perylene	µg/L	1	
	Benzo(k)fluoranthene	µg/L	1	
	Naphthalene	µg/L	1	<5
	Chrysene	µg/L	1	
	Dibenz(a,h)anthracene	µg/L	1	
	Fluoranthene	µg/L	1	
	Fluorene	µg/L	1	
	Indeno(1,2,3-c,d)pyrene	µg/L	1	
	Phenanthrene	µg/L	1	
	Pyrene	µg/L	1	
	PAHs (Sum of total)	µg/L	0.5	
	Carcinogenic PAHs (as BaP TEQ)	µg/L	0.5	
	PFOS/PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1
Perfluorooctanoate		µg/L	0.02	
PFOS		µg/L	0.02	
Phenols	2,4,5-trichlorophenol	µg/L	1	
	2,4,6-trichlorophenol	µg/L	1	
	2,4-dichlorophenol	µg/L	1	
	2,4-dimethylphenol	µg/L	1	
	2,6-dichlorophenol	µg/L	1	
	2-chlorophenol	µg/L	1	
	2-methylphenol	µg/L	1	
	2-nitrophenol	µg/L	1	
	3-&4-methylphenol	µg/L	2	
	4-chloro-3-methylphenol	µg/L	1	
	Pentachlorophenol	µg/L	2	
	Phenol	µg/L	1	
	Polychlorinated Biphenyls	PCBs (Sum of total)	µg/L	1
Solvents	Methyl Ethyl Ketone	µg/L	50	
	2-hexanone (MBK)	µg/L	50	
	4-Methyl-2-pentanone	µg/L	50	
	Carbon disulfide	µg/L	5	
	Vinyl acetate	µg/L	50	
TRH	TRH >C6-C9 Fraction	µg/L	20	
	TRH >C10-C14 Fraction	µg/L	50	
	TRH >C15-C28 Fraction	µg/L	100	
	TRH >C29-C36 Fraction	µg/L	50	
	TRH >C10-C36 Fraction	µg/L	50	
	TRH >C6-C10 Fraction	µg/L	20	
	TRH >C6-C10 less BTEX (F1)	µg/L	20	
	TRH >C10-C16 Fraction	µg/L	100	
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100	
	TRH >C16-C34 Fraction	µg/L	100	
	TRH >C34-C40 Fraction	µg/L	100	
	TRH >C10-C40 Fraction	µg/L	100	
VOCs	cis-1,4-Dichloro-2-butene	µg/L	5	<5
	Pentachloroethane	µg/L	5	<5
	trans-1,4-Dichloro-2-butene	µg/L	5	<5



SDG	Matrix_Type	SampleCode	Field_ID	Method_Name	Compound	Trip_Spike_Result	Trip_Spike_Control	Result_Units	Spike_Recovery_%	Acceptable	Result_Type
ES1405876	SOIL	ES1405876002	TRIP SPIKE 1	EP080: BTEXN	Benzene	0.3	0.7	mg/kg	43	N	REG
ES1405876	SOIL	ES1405876002	TRIP SPIKE 1	EP080: BTEXN	Ethylbenzene	1.2	1.9	mg/kg	63	N	REG
ES1405876	SOIL	ES1405876002	TRIP SPIKE 1	EP080: BTEXN	Toluene	12.1	17.4	mg/kg	70	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	Benzene	0.6	1	mg/kg	60	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	Ethylbenzene	1.9	2.9	mg/kg	66	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	meta- & para-Xylene	8.7	13	mg/kg	67	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	ortho-Xylene	3.7	5.7	mg/kg	65	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	Sum of BTEX	29.1	43.5	mg/kg	67	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	Toluene	14.2	20.9	mg/kg	68	N	REG
ES1404881	SOIL	ES1404881007	TSP16	EP080: BTEXN	Total Xylenes	12.4	18.7	mg/kg	66	N	REG



SDG	Matrix_Type	SampleCode	Field_ID	Method_Name	Compound	Trip_Spike_Result	Trip_Spike_Control	Result_Units	Spike_Recovery_%	Acceptable	Result_Type
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	Ethylbenzene	1.3	2	mg/kg	65	N	REG
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	meta- & para-Xylene	6.4	9.7	mg/kg	66	N	REG
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	ortho-Xylene	2.6	4	mg/kg	65	N	REG
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	Sum of BTEX	22.5	33.7	mg/kg	67	N	REG
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	Toluene	11.9	17.6	mg/kg	68	N	REG
ES1405740	SOIL	ES1405740005	TRIP SPIKE1	EP080: BTEXN	Total Xylenes	9	13.7	mg/kg	66	N	REG
ES1405360	SOIL	ES1405360014	TSP 1	EP080: BTEXN	Benzene	0.3	0.6	mg/kg	50	N	REG



SDG	Sample_Type	Matrix_Type	SampleCode	Sampled_Date	Compound	Recovery %	LCL	UCL	Comments
ES1404115	MS	SOIL	3962690-005_EB1404606001_ES1404115	25/02/2014	1,2-Dichloroethane-D4	72	72.8	133.2	Recovery less than lower data quality objective
ES1405360	LAB_D	SOIL	3987080-016_ES1405360011_ES1405360	11/03/2014	Toluene-D8	73.8	73.9	132.1	Recovery less than lower data quality objective
ES1405362	LAB_D	SOIL	3992639-004_ES1405362011_ES1405362	11/03/2014	2,4,6-Tribromophenol	46.3	40	138	RPD exceeds LOR based limits
ES1405121	LAB_D	SOIL	3983729-021_ES1405127012_ES1405121	11/03/2014	2,4,6-Tribromophenol	64.4	40	138	RPD exceeds LOR based limits
ES1405227	LCS	SOIL	3983768-002_ES1405227	12/03/2014	Toluene-D8	82.7	83.5	131.6	Recovery less than lower data quality objective
ES1405660	Normal	SOIL	ES1405660015	13/03/2014	4-Bromofluorobenzene	52.3	71.6	130	Recovery less than lower data quality objective
ES1405738	Normal	SOIL	ES1405738004	14/03/2014	Toluene-D8	73.4	73.9	132.1	Recovery less than lower data quality objective
ES1405739	Normal	SOIL	ES1405739006	14/03/2014	4-Terphenyl-d14	59	65	129	Recovery less than lower data quality objective
ES1405739	Normal	SOIL	ES1405739007	14/03/2014	2-Chlorophenol-D4	61.1	66	122	Recovery less than lower data quality objective
ES1405739	Field_D	SOIL	ES1405739008	14/03/2014	2-Chlorophenol-D4	124	66	122	Recovery greater than upper data quality objective
ES1405876	MS	SOIL	3997931-009_ES1405880001_ES1405876	17/03/2014	2-Fluorobiphenyl	124	70	122	Recovery greater than upper data quality objective
ES1405877	MS	SOIL	3997931-009_ES1405880001_ES1405877	17/03/2014	2-Fluorobiphenyl	124	70	122	Recovery greater than upper data quality objective
ES1405880	MS	SOIL	3997931-009_ES1405880001_ES1405880	17/03/2014	2-Fluorobiphenyl	124	70	122	Recovery greater than upper data quality objective
ES1405881	MS	SOIL	3997931-009_ES1405880001_ES1405881	17/03/2014	2-Fluorobiphenyl	124	70	122	Recovery greater than upper data quality objective
ES1405879	Normal	SOIL	ES1405879003	17/03/2014	4-Terphenyl-d14	62	65	129	Recovery less than lower data quality objective
ES1405963	LAB_D	SOIL	4007228-020_ES1406127010_ES1405963	17/03/2014	4-Bromofluorobenzene	131	71.6	130	Recovery greater than upper data quality objective
ES1405660	MB	SOIL	3995157-001_ES1405660	18/03/2014	Toluene-D8	78	83.5	131.6	Recovery less than lower data quality objective
ES1405660	MB	SOIL	3995157-001_ES1405660	18/03/2014	4-Bromofluorobenzene	74.2	82.8	132.7	Recovery less than lower data quality objective
ES1405672	MB	SOIL	3995157-001_ES1405672	18/03/2014	Toluene-D8	78	83.5	131.6	Recovery less than lower data quality objective
ES1405672	MB	SOIL	3995157-001_ES1405672	18/03/2014	4-Bromofluorobenzene	74.2	82.8	132.7	Recovery less than lower data quality objective
ES1405738	LCS	SOIL	3995206-007_ES1405738	18/03/2014	2-Fluorobiphenyl	58.3	75	125	Recovery less than lower control limit
ES1405739	LCS	SOIL	3995206-007_ES1405739	18/03/2014	2-Fluorobiphenyl	58.3	75	125	Recovery less than lower control limit
ES1405736	LCS	SOIL	3996006-007_ES1405736	18/03/2014	2-Chlorophenol-D4	69	72	122	Recovery less than lower control limit
ES1405740	LCS	SOIL	3996006-007_ES1405740	18/03/2014	2-Chlorophenol-D4	69	72	122	Recovery less than lower control limit
ES1406280	Normal	SOIL	ES1406280004	20/03/2014	Toluene-D8	136	66	136	Recovery greater than upper data quality objective
ES1406277	LCS	SOIL	4007090-002_ES1406277	24/03/2014	1,2-Dichloroethane-D4	78.1	78.6	135.1	Recovery less than lower data quality objective
ES1406498	LAB_D	SOIL	4015565-004_ES1406394009_ES1406498	24/03/2014	Toluene-D8	132	73.9	132.1	Recovery greater than upper data quality objective
ES1406277	LCS	SOIL	4007910-007_ES1406277	24/03/2014	2-Fluorobiphenyl	74.4	75	125	Recovery less than lower control limit
ES1406142	LCS	SOIL	4007910-007_ES1406142	24/03/2014	2-Fluorobiphenyl	74.4	75	125	Recovery less than lower control limit
ES1406762	Normal	SOIL	ES1406762012	27/03/2014	2-Fluorobiphenyl	69.9	70	122	Recovery less than lower data quality objective
ES1406762	MB	SOIL	4021915-001_ES1406762	31/03/2014	2-Fluorobiphenyl	74.3	75	125	Recovery less than lower control limit
ES1406908	MB	SOIL	4021915-001_ES1406908	31/03/2014	2-Fluorobiphenyl	74.3	75	125	Recovery less than lower control limit
ES1407203	LAB_D	SOIL	4029752-026_ES1407203006_ES1407203	31/03/2014	4-Terphenyl-d14	131	65	129	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203006	31/03/2014	Phenol-d6	125	63	123	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203006	31/03/2014	2-Chlorophenol-D4	124	66	122	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203005	31/03/2014	4-Terphenyl-d14	130	65	129	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203005	31/03/2014	2-Chlorophenol-D4	123	66	122	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203008	31/03/2014	Phenol-d6	127	63	123	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203008	31/03/2014	2-Chlorophenol-D4	125	66	122	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203009	31/03/2014	2-Chlorophenol-D4	125	66	122	Recovery greater than upper data quality objective
ES1407203	Normal	SOIL	ES1407203010	31/03/2014	Phenol-d6	124	63	123	Recovery greater than upper data quality objective

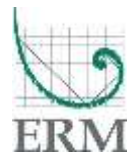




SDG	Sample_Type	Matrix_Type	SampleCode	Sampled_Date	Compound	Recovery %	LCL	UCL	Comments
ES1405672	Field_D	Sediment	ES1405672019	13/03/2014	Toluene-D8	73.1	73.9	132.1	Recovery less than lower data quality objective



SDG	Sample_Type	Matrix_Type	SampleCode	Sampled_Date	Compound	Recovery %	LCL	UCL	Comments
ES1404400	Rinsate	WATER	ES1404400013	27/02/2014	Phenol-d6	44.1	10	44	Recovery greater than upper data quality objective
ES1404400	MB	WATER	3964968-001_ES1404400	3/03/2014	2-Fluorobiphenyl	109	26.6	107	Recovery greater than upper control limit
ES1404400	MB	WATER	3965458-001_ES1404400	3/03/2014	Toluene-D8	125	69	122.5	Recovery greater than upper data quality objective
ES1405121	LAB_D	WATER	3982162-004_ES1405070002_ES1405121	10/03/2014	2,4,6-Tribromophenol	39.1	17	125	RPD exceeds LOR based limits
ES1405121	LAB_D	WATER	3982162-004_ES1405070002_ES1405121	10/03/2014	Phenol-d6	18.7	10	44	RPD exceeds LOR based limits
ES1405121	LAB_D	WATER	3982162-004_ES1405070002_ES1405121	10/03/2014	2-Chlorophenol-D4	52.7	14	94	RPD exceeds LOR based limits
ES1405227	Rinsate	WATER	ES1405227027	10/03/2014	Toluene-D8	133	79	131	Recovery greater than upper data quality objective
ES1405359	Normal	WATER	ES1405359008	11/03/2014	Phenol-d6	45.5	10	44	Recovery greater than upper data quality objective
ES1405527	Normal	WATER	ES1405527011	12/03/2014	Phenol-d6	47.4	10	44	Recovery greater than upper data quality objective
ES1405527	Normal	WATER	ES1405527012	12/03/2014	Phenol-d6	51.7	10	44	Recovery greater than upper data quality objective
ES1405527	Normal	WATER	ES1405527012	12/03/2014	Toluene-D8	135	79	131	Recovery greater than upper data quality objective
ES1405527	Normal	WATER	ES1405527013	12/03/2014	Phenol-d6	50.8	10	44	Recovery greater than upper data quality objective
ES1405527	Normal	WATER	ES1405527014	12/03/2014	Phenol-d6	51.3	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673001	13/03/2014	Phenol-d6	45.4	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673002	13/03/2014	Phenol-d6	53.9	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673003	13/03/2014	Phenol-d6	46.8	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673004	13/03/2014	Phenol-d6	51.8	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673005	13/03/2014	Phenol-d6	47	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673006	13/03/2014	Phenol-d6	55.9	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673007	13/03/2014	Phenol-d6	61.4	10	44	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673007	13/03/2014	2-Chlorophenol-D4	94.6	14	94	Recovery greater than upper data quality objective
ES1405673	Normal	WATER	ES1405673009	13/03/2014	Phenol-d6	48.3	10	44	Recovery greater than upper data quality objective
ES1405673	Field_D	WATER	ES1405673008	13/03/2014	Phenol-d6	46.8	10	44	Recovery greater than upper data quality objective
ES1406277	LAB_D	WATER	4015722-016_ES1406191016_ES1406277	18/03/2014	Toluene-D8	134	79	131	Recovery greater than upper data quality objective
ES1406277	LAB_D	WATER	4007496-004_ES1406191015_ES1406277	18/03/2014	4-Terphenyl-d14	42.7	32	112	RPD exceeds LOR based limits
ES1406277	LAB_D	WATER	4007496-004_ES1406191015_ES1406277	18/03/2014	Anthracene-d10	40	27.4	113	RPD exceeds LOR based limits
ES1406277	LAB_D	WATER	4007496-004_ES1406191015_ES1406277	18/03/2014	2-Fluorobiphenyl	39.6	20	104	RPD exceeds LOR based limits
ES1406140	Rinsate	WATER	ES1406140012	19/03/2014	Phenol-d6	44.5	10	44	Recovery greater than upper data quality objective
ES1406495	Normal	WATER	ES1406495004	24/03/2014	Toluene-D8	76.1	79	131	Recovery less than lower data quality objective
ES1406590	MS	WATER	4019674-005_ES1406587021_ES1406590	26/03/2014	Toluene-D8	77.6	79	131	Recovery less than lower data quality objective
ES1406590	LCS	WATER	4018519-011_ES1406590	28/03/2014	Phenol-d6	71.1	10	65.7	Recovery greater than upper data quality objective
ES1406758	LCS	WATER	4021754-007_ES1406758	31/03/2014	Phenol-d6	78.5	10	65.7	Recovery greater than upper data quality objective
ES1406762	LCS	WATER	4021754-007_ES1406762	31/03/2014	Phenol-d6	78.5	10	65.7	Recovery greater than upper data quality objective



SDG	Sample_Type	Matrix_Type	SampleCode	Field_ID	Sampled_Date-Time	Compound	Recovery %	LCL %	UCL %	Unit	Comments
ALSE-Sydney 27-May-14	Trip_B	WATER	ES1411773019	TB 1	26/05/2014	4-Bromofluorobenzene	131	70	128	%	Recovery greater than upper data quality objective



SDG	Matrix_Type	SampleCode	Method_Name	OriginalChemName	Recovery %	Result_Type	Comments
ES1406277	SOIL	4007910-007_ES1406277	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	74.4	SUR	Recovery less than lower control limit
ES1405879	SOIL	4000880-007_ES1405879	EP075(SIM)A: Phenolic Compounds	Pentachlorophenol	69	REG	Recovery greater than upper control limit
ES1406142	SOIL	4007910-007_ES1406142	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	74.4	SUR	Recovery less than lower control limit
ES1405738	SOIL	3995206-007_ES1405738	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	58.3	SUR	Recovery less than lower control limit
ES1405739	SOIL	3995206-007_ES1405739	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	58.3	SUR	Recovery less than lower control limit
ES1405736	SOIL	3996006-007_ES1405736	EP075(SIM)S: Phenolic Compound Surrogates	2-Chlorophenol-D4	69	SUR	Recovery less than lower control limit
ES1405740	SOIL	3996006-007_ES1405740	EP075(SIM)S: Phenolic Compound Surrogates	2-Chlorophenol-D4	69	SUR	Recovery less than lower control limit



SDG	Matrix_Type	SampleCode	Method_Name	OriginalChemName	Recovery %	Result_Type	Comments
ES1406590	WATER	4018519-011_ES1406590	EP075(SIM)S: Phenolic Compound Surrogates	Phenol-d6	71.1	SUR	Recovery greater than upper data quality objective
ES1406590	WATER	4021654-002_ES1406590	EP074B: Oxygenated Compounds	Vinyl Acetate	59.9	REG	Recovery less than lower control limit
ES1406761	WATER	4021789-007_ES1406761	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Benz(a)anthracene	63.5	REG	Recovery less than lower control limit
ES1406761	WATER	4027120-002_ES1406761	EP074E: Halogenated Aliphatic Compounds	Pentachloroethane	70.6	REG	Recovery less than lower control limit
ES1407204	WATER	4030149-002_ES1407204	EP075(SIM)A: Phenolic Compounds	2-Chlorophenol	62.6	REG	Recovery less than lower control limit
ES1407299	WATER	4032910-007_ES1407299	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Acenaphthene	61.7	REG	Recovery less than lower control limit
ES1407301	WATER	4032910-007_ES1407301	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Acenaphthene	61.7	REG	Recovery less than lower control limit
ES1405963	WATER	4001157-007_ES1405963	EP075(SIM)A: Phenolic Compounds	2-Chlorophenol	61	REG	Recovery less than lower control limit
ES1405963	WATER	4001944-002_ES1405963	EP074B: Oxygenated Compounds	Vinyl Acetate	60.5	REG	Recovery less than lower control limit
ES1405673	WATER	3992514-007_ES1405673	EP075(SIM)A: Phenolic Compounds	2-Nitrophenol	61.6	REG	Recovery less than lower control limit
ES1405525	WATER	3992522-018_ES1405525	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Acenaphthene	62.2	REG	Recovery less than lower control limit
ES1405527	WATER	3992522-018_ES1405527	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Acenaphthene	62.2	REG	Recovery less than lower control limit
ES1405660	WATER	3993662-007_ES1405660	EP075(SIM)A: Phenolic Compounds	2-Chlorophenol	61.8	REG	Recovery less than lower control limit
ES1405527	WATER	3995152-002_ES1405527	EP080S: TPH(V)/BTEX Surrogates	4-Bromofluorobenzene	71.4	SUR	Recovery less than lower data quality objective
ES1405362	WATER	3992514-007_ES1405362	EP075(SIM)A: Phenolic Compounds	2-Nitrophenol	61.6	REG	Recovery less than lower control limit



SDG	Matrix_Type	SampleCode	Method_Name	OriginalChemName	Recovery %	Unit	Result_Type	Comments
ALSE-Sydney 27-May-14	WATER	4139691-002_ES1411772	EP074D: Fumigants	2,2-Dichloropropane	120	%	REG	Recovery greater than upper control limit





SDG	Matrix_Type	SampleCode	Sampled_Date	Method_Name	Compound	Recovery %	Result_Type	Comments
ES1404115	SOIL	3962690-005_EB1404606001_ES1404115	25/02/2014	EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	72	SUR	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Pyrene	59.1	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Benzo(g,h,i)perylene	42	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Benzo(b)fluoranthene	31.1	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Fluoranthene	57.8	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Chrysene	55.2	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Benz(a)anthracene	65.8	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Phenanthrene	49.7	REG	Recovery less than lower data quality objective
ES1405360	SOIL	3987730-005_ES1405360001_ES1405360	11/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Naphthalene	44	REG	Recovery less than lower data quality objective
ES1405527	SOIL	3993099-005_ES1405527001_ES1405527	12/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Coronene	22.4	REG	Recovery less than lower data quality objective
ES1405527	SOIL	3993099-005_ES1405527001_ES1405527	12/03/2014	EP132B: Polynuclear Aromatic Hydrocarbons	Benzo(g,h,i)perylene	38.5	REG	Recovery less than lower data quality objective
ES1405876	SOIL	3997931-009_ES1405880001_ES1405876	17/03/2014	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	124	SUR	Recovery greater than upper data quality objective
ES1405877	SOIL	3997931-009_ES1405880001_ES1405877	17/03/2014	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	124	SUR	Recovery greater than upper data quality objective
ES1405880	SOIL	3997931-009_ES1405880001_ES1405880	17/03/2014	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	124	SUR	Recovery greater than upper data quality objective
ES1405881	SOIL	3997931-009_ES1405880001_ES1405881	17/03/2014	EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	124	SUR	Recovery greater than upper data quality objective
ES1406497	SOIL	4015716-011_ES1406239001_ES1406497	20/03/2014	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Pyrene	66.8	REG	Recovery less than lower data quality objective
ES1406499	SOIL	4015716-011_ES1406239001_ES1406499	20/03/2014	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	Pyrene	66.8	REG	Recovery less than lower data quality objective
ES1405963	SOIL	4007248-005_ES1406076001_ES1405963	21/03/2014	EP066: Polychlorinated Biphenyls (PCB)	Total Polychlorinated biphenyls	63.9	REG	Recovery less than lower data quality objective



SDG	Matrix_Type	SampleCode	Sampled_Date	Method_Name	Compound	Recovery %	Result_Type	Comments
ES1406495	WATER	4017905-006_ES1406485002_ES1406495	25/03/2014	EG035T: Total Recoverable Mercury by FIMS	Mercury	50.5	REG	Recovery less than lower data quality objective
ES1406497	WATER	4017905-006_ES1406485002_ES1406497	25/03/2014	EG035T: Total Recoverable Mercury by FIMS	Mercury	50.5	REG	Recovery less than lower data quality objective
ES1406590	WATER	4025370-006_ES1406589002_ES1406590	26/03/2014	EG035F: Dissolved Mercury by FIMS	Mercury	62.5	REG	Recovery less than lower data quality objective
ES1406590	WATER	4019674-005_ES1406587021_ES1406590	26/03/2014	EP080S: TPH(V)/BTEX Surrogates	Toluene-D8	77.6	SUR	Recovery less than lower data quality objective
ES1406761	WATER	4024263-005_EP1402377001_ES1406761	27/03/2014	EP231: Perfluorinated Compounds	PFOA	64.4	REG	Recovery less than lower data quality objective
ES1406907	WATER	4024263-005_EP1402377001_ES1406907	27/03/2014	EP231: Perfluorinated Compounds	PFOA	64.4	REG	Recovery less than lower data quality objective



SDG	Matrix_Type	Lab_Duplicate	Sampled_Date	Method_Name	Compound	Parent_Result	Dupe_Result	Result_Unit	EQL	RPD
ES1405878	SOIL	3998493-054_ES1405804004_ES1405878	17/03/2014	EG005T: Total Metals by ICP-AES	Manganese	98	129	mg/kg	5 mg/kg	27



SDG	Matrix_Type	Lab_Duplicate	Sampled_Date	Method_Name	Compound	Parent_Result	Dupe_Result	Result_Unit	EQL	RPD
ES1405121	WATER	3989507-004_ES1405118001_ES1405121	7/03/2014	EP080: BTEXN	Naphthalene	140	60	µg/L	5 µg/L	80
ES1405227	WATER	3986185-004_ES1405298005_ES1405227	11/03/2014	EP080/071: Total Recoverable Hydrocarbons - NEPM 2013	C6 - C10 Fraction	2.59	3050	mg/L	20 mg/L	200
ES1405879	WATER	4006881-006_ES1405848001_ES1405879	19/03/2014	EG020T: Total Metals by ICP-MS	Nickel	1	0.002	µg/L	0.001 µg/L	199
ES1405879	WATER	4006881-006_ES1405848001_ES1405879	19/03/2014	EG020T: Total Metals by ICP-MS	Arsenic	1	0.002	µg/L	0.001 µg/L	199
ES1405879	WATER	4006881-006_ES1405848001_ES1405879	19/03/2014	EG020T: Total Metals by ICP-MS	Chromium	2	<0.001	µg/L	0.001 µg/L	200
ES1405879	WATER	4006881-006_ES1405848001_ES1405879	19/03/2014	EG020T: Total Metals by ICP-MS	Zinc	5	<0.005	µg/L	0.005 µg/L	200
ES1407204	WATER	4031415-035_ES1407297016_ES1407204	1/04/2014	ED093F: Dissolved Major Cations	Sodium	79	107	mg/L	1 mg/L	30



SDG	Matrix_Type	SampleCode	Field_ID	Depth	Sampled_Date-Time	Volatility	ChemName	Result	Sampled_to_Extraction_Days	Sampled_to_Analysis_Days	Major_Exceedance
ALSE-Sydney 21-Mar-14	water	ES1406274001	VO_MW05_210314		21/03/2014	Other	Mercury	0.0001 mg/L			32 Y
ALSE-Sydney 21-Mar-14	water	ES1406274002	VO_MW06_210314	-	21/03/2014	Other	Mercury	0.0001 mg/L			32 Y
ALSE-Sydney 21-Mar-14	water	ES1406274003	VO_MW07_210314		21/03/2014	Other	Mercury	0.0001 mg/L			33 Y
ALSE-Sydney 21-Mar-14	water	ES1406274004	VO_MW09_210314		21/03/2014	Other	Mercury	0.0001 mg/L			33 Y
ALSE-Sydney 21-Mar-14	water	ES1406274005	VO_MW10_210314	-	21/03/2014	Other	Mercury	0.0001 mg/L			33 Y
ALSE-Sydney 21-Mar-14	water	ES1406274006	VO_MW20_210314		21/03/2014	Other	Mercury	0.0001 mg/L			33 Y
ALSE-Sydney 21-Mar-14	WATER	ES1406274007	D01_210314_SN		21/03/2014	Other	Mercury	0.0001 mg/L		32.66666667	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590013	R02_250314_SO		25/03/2014	VOC	Vinyl chloride	50 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	water	ES1406590018	VH_X_MW02_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590019	VH_X_MW07_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590020	VH_X_MW08_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590021	VH_X_MW09_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590022	VH_X_MW10_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590023	VB_MW02_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590024	VB_MW01_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590025	VI_MW01_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590026	VA_MW02_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590027	D02_250314_SB		25/03/2014	VOC	Vinyl chloride	50 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590028	T01_250314_SB		25/03/2014	VOC	Vinyl chloride	50 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	water	ES1406590029	VA_MW01_250314		25/03/2014	VOC	Vinyl chloride	50 µg/L	8	8	Y
ALSE-Sydney 28-Mar-14	water	ES1406907001	VS_MW05_270314	-	27/03/2014	VOC	Vinyl chloride	50 µg/L	7.488888889	7.488888889	Y
ALSE-Sydney 28-Mar-14	water	ES1406907002	VK_MW01_270314	-	27/03/2014	VOC	Vinyl chloride	50 µg/L	7.496527778	7.496527778	Y
ALSE-Sydney 28-Mar-14	water	ES1406907003	VK_MW02_270314	-	27/03/2014	VOC	Vinyl chloride	50 µg/L	7.466666667	7.466666667	Y
ALSE-Sydney 28-Mar-14	WATER	ES1406907004	D01_270314_SN		27/03/2014	VOC	Vinyl chloride	50 µg/L	7.5	7.5	Y
ALSE-Sydney 28-Mar-14	water	ES1406907005	VD_MW04_270314	-	27/03/2014	VOC	Vinyl chloride	50 µg/L	7.631944444	7.631944444	Y
ALSE-Sydney 31-Mar-14	water	ES1407023001	VE_MW02_280314	-	28/03/2014	VOC	Vinyl chloride	50 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023002	VE_MW03_280314	-	28/03/2014	VOC	Vinyl chloride	50 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023003	VC_MW04_280314	-	28/03/2014	VOC	Vinyl chloride	50 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023004	VA_MW06_280314	-	28/03/2014	VOC	Vinyl chloride	50 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	WATER	ES1407023005	D04_280314_SO		28/03/2014	VOC	Vinyl chloride	50 µg/L	9.375	9.375	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590013	R02_250314_SO		25/03/2014	VOC	Styrene	5 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	water	ES1406590018	VH_X_MW02_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590019	VH_X_MW07_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590020	VH_X_MW08_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590021	VH_X_MW09_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590022	VH_X_MW10_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590023	VB_MW02_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590024	VB_MW01_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590025	VI_MW01_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	water	ES1406590026	VA_MW02_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590027	D02_250314_SB		25/03/2014	VOC	Styrene	5 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	WATER	ES1406590028	T01_250314_SB		25/03/2014	VOC	Styrene	5 µg/L	7.375	7.375	Y
ALSE-Sydney 26-Mar-14	water	ES1406590029	VA_MW01_250314		25/03/2014	VOC	Styrene	5 µg/L	8	8	Y
ALSE-Sydney 28-Mar-14	water	ES1406907001	VS_MW05_270314	-	27/03/2014	VOC	Styrene	5 µg/L	7.488888889	7.488888889	Y
ALSE-Sydney 28-Mar-14	water	ES1406907002	VK_MW01_270314	-	27/03/2014	VOC	Styrene	5 µg/L	7.496527778	7.496527778	Y
ALSE-Sydney 28-Mar-14	water	ES1406907003	VK_MW02_270314	-	27/03/2014	VOC	Styrene	5 µg/L	7.466666667	7.466666667	Y
ALSE-Sydney 28-Mar-14	WATER	ES1406907004	D01_270314_SN		27/03/2014	VOC	Styrene	5 µg/L	7.5	7.5	Y
ALSE-Sydney 28-Mar-14	water	ES1406907005	VD_MW04_270314	-	27/03/2014	VOC	Styrene	5 µg/L	7.631944444	7.631944444	Y
ALSE-Sydney 31-Mar-14	water	ES1407023001	VE_MW02_280314	-	28/03/2014	VOC	Styrene	5 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023002	VE_MW03_280314	-	28/03/2014	VOC	Styrene	5 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023003	VC_MW04_280314	-	28/03/2014	VOC	Styrene	5 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	water	ES1407023004	VA_MW06_280314	-	28/03/2014	VOC	Styrene	5 µg/L	9.375	9.375	Y
ALSE-Sydney 31-Mar-14	WATER	ES1407023005	D04_280314_SO		28/03/2014	VOC	Styrene	5 µg/L	9.375	9.375	Y

Annex G

Photolog





**Photograph 1**

AEC VA – B Station Power Block



**Photograph 2**

AEC VA – B Station Power Block, VA\_MW01 to be drilled in the foreground.



**Photograph 3**

AEC VA – B Station Power Block; VA\_MW05 location.



**Photograph 4**

AEC VA – B Station Power Block; VA\_MW05 push tube recovery to 6.3m bgl.



**Photograph 5**

AEC VB – A Station Power Block; Currently under demolition, looking east.



**Photograph 6**

AEC VB – A Station Power Block; View of the northern portion of the AEC.



**Photograph 7**

AEC VB – A Station Power Block; Western portion.



**Photograph 8**

AEC VB - A Station Power Block; View south west along inlet canal.



**Photograph 9**

AEC VB – A Station Power Block ; VB\_MW05 push tube recovery to 6.3m bgl.

## Photographs





**Photograph 10**

AEC VC – Transformers, looking north west up the inlet canal, towards Chain Valley Bay and Lake Macquarie. Near VC\_MW04



**Photograph 11**

AEC VC – Transformers; looking west.



**Photograph 12**

AEC VC – Transformers; Push tube recovery from VC\_MW04 to 3.9m bgl.



**Photograph 13**

AEC VD – Main Store.



**Photograph 14**

AEC VD – Main Store; looking west towards VD\_MW04.



**Photograph 15**

AEC VD – Main Store; Push tube recovery of VD\_MW04 to 5.1m bgl.



**Photograph 16**

AEC VE – Contaminated Water Treatment System;  
Looking north towards Chain Valley Bay.



**Photograph 17**

AEC VE – Contaminated Water Treatment System;  
Looking east towards Chain Valley Bay and Lake  
Macquarie.



**Photograph 18**

AEC VE – Contaminated Water Treatment System;  
Looking east towards treatment pond and Chain  
Valley Bay and Lake Macquarie beyond.





**Photograph 19**

AEC VF – Waste Oil Storage Area; Oil drum storage area looking north towards Chain Valley Bay and inlet canal.



**Photograph 20**

AEC VF – Waste Oil Storage Area; Oil drum storage area looking north towards VF\_MW02 and VF\_MW03 and Chain Valley Bay and inlet canal beyond.



**Photograph 21**

AEC VF – Waste Oil Storage Area; Push tube recovery of VF\_MW03 to 6.3m bgl.



**Photograph 22**

AEC VG – Fuel Oil Installation; Looking north west towards fuel oil AST's.



**Photograph 23**

AEC VG – Fuel Oil Installation; Looking west.



**Photograph 24**

AEC VG – Fuel Oil Installation; Push tube recovery of VG\_MW02 to 5.1m bgl.





**Photograph 25**

AEC VH – Vehicle Refuelling Depot; UST's and bowzer area containing unleaded and diesel fuel.



**Photograph 26**

AEC VH – Vehicle Refuelling Depot; UST's and bowzer area containing unleaded and diesel fuel.



**Photograph 27**

AEC VI – Water Treatment Plant; Looking south west.



**Photograph 28**

AEC VI – Water Treatment Plant; VI\_MW02 location.



**Photograph 29**

AEC VJ – Coal Storage Area;



**Photograph 30**

AEC VJ – Coal Storage Area;



**Photograph 31**

AEC VJ – Coal Storage Area;



**Photograph 32**

AEC VJ – Coal Storage Area, buffer lands



**Photograph 33**

AEC VK – Mobile Plant Maintenance;





**Photograph 34**

AEC VK – Mobile Plant Maintenance;



**Photograph 35**

AEC VL – Sewage Treatment Plant; Looking east towards the TransGrid switchyard and main power station beyond.



**Photograph 36**

AEC VL – Sewage Treatment Plant; Push tube recovery of VL\_MW02 to 5.0m bgl.





**Photograph 37**

AEC VM – Chlorine Plant; Location VM\_MW04 looking north east towards the TransGrid switchyard.



**Photograph 38**

AEC VM – Chlorine Plant; Looking to the north near VM\_MW04.



**Photograph 39**

AEC VM – Chlorine Plant; Push tube recovery of VM\_MW01 to 5.1m bgl.



**Photograph 40**

AEC VN – Mandalong Coal Rail Unloader; Looking towards the fire water storage tanks down gradient of VN\_MW06 and VN\_MW07.



**Photograph 41**

AEC VN – Mandalong Coal Rail Unloader; VN\_SB02.



**Photograph 42**

AEC VN – Mandalong Coal Rail Unloader; VN\_MW08, looking towards fire water storage tanks and hoppers of the Unloader beyond.





**Photograph 43**

AEC VN – Mandalong Coal Rail Unloader; Location VN\_MW09, looking south east down-gradient of fire water storage tanks.



**Photograph 44**

AEC VN – Mandalong Coal Unloader; Looking north towards location VN\_MW01.



**Photograph 45**

AEC VN – Mandalong Coal Rail Unloader; Push tube recovery of location VN\_MW05 to 4.9m bgl.



**Photograph 46**

AEC VN – Fly-tipped waste consisting of open motor waste oil drums dumped approximately 20 m to the south of VN\_MW10.



**Photograph 47**

AEC VN – Fly-tipped waste dumped approximately 20 m south of VN\_MW10.



**Photograph 48**

AEC VN – Fly-tipped waste dumped approximately 10m to the east of VN\_MW10.





**Photograph 49**

AEC VO – Ash Dam; Looking north towards VO\_MW19, with the ash dam and distressed vegetation to the left.



**Photograph 50**

AEC VO – Ash Dam; Southernmost point of the Ash Dam looking north west.



**Photograph 51**

AEC VO – Ash Dam; VO\_MW17 looking east towards Pacific Highway.



**Photograph 52**

AEC VO – Ash Dam; Push tube recovery of VO\_MW15.



**Photograph 53**

AEC VP – Asbestos Landfills; Location VP\_SB08 looking west.



**Photograph 54**

AEC VP – Asbestos Landfills.





**Photograph 55**

AEC VP – Asbestos Landfills



**Photograph 56**

AEC VQ – Asbestos-containing Pipeline;



**Photograph 57**

AEC VQ – Asbestos-containing Pipeline;



**Photograph 58**

AEC VS – TransGrid Switchyard; Looking towards the northern side of the inlet canal towards the switchyard.



**Photograph 59**

AEC VS – TransGrid Switchyard; Storage area within the TransGrid property, location of VS\_MW05.



**Photograph 60**

AEC VS – TransGrid Switchyard; Looking to the south west towards locations VS\_MW03 and VS\_MW04.





**Photograph 61**

AEC VS – TransGrid Switchyard; Push tube recovery of VS\_MW02 to 6.3m bgl.



**Photograph 62**

AEC VT – Fly Ash Plant; Looking north west towards VT\_MW01.



**Photograph 63**

AEC VT- Fly Ash Plant; Looking north west towards VT\_MW03.



**Photograph 64**

AEC VU – Buffer Lands and Boundaries; Looking north towards VU\_MW03.



**Photograph 65**

AEC VU – Buffer Lands and Boundaries; Looking south east to VU\_MW15 and the TransGrid and power station beyond.



**Photograph 66**

AEC VU – Buffer Lands and Boundaries; View east of VU\_MW12 and residential homes beyond.





**Photograph 67**

AEC VU; Buffer Lands and Boundaries; Push tube recovery of VU\_MW15 to 6.3m bgl.



**Photograph 68**

AEC VO; Ash Dam toe drain area.



**Photograph 69**

Vales Point Power Station

Annex H

# Laboratory Certificates



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405360</b>	Page	: 1 of 16
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: JD	No. of samples received	: 16
Site	: ----	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP132: Poor matrix spike recovery due to sample matrix interferences.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_W_SS04	VR_W_SS03	VR_V_SS02	VR_T_SS01	VR_V_SS01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-001	ES1405360-002	ES1405360-003	ES1405360-004	ES1405360-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	4	8	10	49	30
+150µm	----	1	%	2	4	9	47	20
+300µm	----	1	%	2	3	9	45	13
+425µm	----	1	%	2	2	8	44	7
+600µm	----	1	%	1	2	8	44	4
+1180µm	----	1	%	<1	2	8	44	2
+2.36mm	----	1	%	<1	2	8	43	2
+4.75mm	----	1	%	<1	<1	6	41	2
+9.5mm	----	1	%	<1	<1	3	36	<1
+19.0mm	----	1	%	<1	<1	<1	19	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.3	8.4	8.6	8.4	8.6
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	67.1	62.5	67.9	62.5	59.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	96	92	90	51	70
Sand (>75 µm)	----	1	%	3	6	2	6	28
Gravel (>2mm)	----	1	%	<1	2	8	43	2
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Barium	7440-39-3	0.1	mg/kg	15.6	17.4	9.1	8.1	6.7
Arsenic	7440-38-2	0.1	mg/kg	14.8	10.9	16.8	15.4	12.4
Cobalt	7440-48-4	0.1	mg/kg	8.0	6.1	9.7	7.2	7.5
Beryllium	7440-41-7	0.1	mg/kg	1.4	0.8	0.8	0.7	0.6
Boron	7440-42-8	5	mg/kg	85	67	79	99	50
Manganese	7439-96-5	0.1	mg/kg	396	327	472	296	257
Cadmium	7440-43-9	0.1	mg/kg	1.2	2.4	0.6	1.1	0.3
Chromium	7440-47-3	0.1	mg/kg	23.5	24.6	21.4	18.2	14.9
Copper	7440-50-8	0.1	mg/kg	85.4	53.8	24.6	28.1	29.4
Vanadium	7440-62-2	1	mg/kg	44	48	48	44	27
Lead	7439-92-1	0.1	mg/kg	28.5	25.5	19.5	15.5	13.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_W_SS04	VR_W_SS03	VR_V_SS02	VR_T_SS01	VR_V_SS01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-001	ES1405360-002	ES1405360-003	ES1405360-004	ES1405360-005
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Molybdenum	7439-98-7	0.1	mg/kg	1.6	5.7	1.9	4.3	2.0
Nickel	7440-02-0	0.1	mg/kg	10.4	8.9	9.4	8.3	6.6
Selenium	7782-49-2	1	mg/kg	2	4	2	2	2
Thallium	7440-28-0	0.1	mg/kg	0.6	0.4	<0.1	0.2	0.2
Zinc	7440-66-6	0.5	mg/kg	178	163	118	86.6	98.6
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	5.23	5.93	1.52	1.60	0.94
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	<2	<2	<2
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	220	240	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	130	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	220	370	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	290	330	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_W_SS04	VR_W_SS03	VR_V_SS02	VR_T_SS01	VR_V_SS01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-001	ES1405360-002	ES1405360-003	ES1405360-004	ES1405360-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<b>290</b>	<b>330</b>	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<b>460</b>	<b>860</b>	<b>30</b>	<b>20</b>	<b>30</b>
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<b>20</b>	<b>50</b>	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<b>150</b>	<10	<b>10</b>	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<b>220</b>	<b>340</b>	<b>20</b>	<b>20</b>	<b>20</b>
Benzo(a)pyrene	50-32-8	10	µg/kg	<b>140</b>	<b>200</b>	<b>20</b>	<b>20</b>	<b>20</b>
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<b>150</b>	<b>250</b>	<b>20</b>	<b>20</b>	<b>20</b>
Benzo(e)pyrene	192-97-2	10	µg/kg	<b>130</b>	<b>200</b>	<b>10</b>	<b>20</b>	<b>20</b>
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<b>40</b>	<b>40</b>	<10	<b>10</b>	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<b>60</b>	<b>120</b>	<10	<b>10</b>	<10
Chrysene	218-01-9	10	µg/kg	<b>220</b>	<b>330</b>	<b>20</b>	<b>20</b>	<b>20</b>
Coronene	191-07-1	10	µg/kg	<b>10</b>	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<b>20</b>	<b>10</b>	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	<b>380</b>	<b>580</b>	<b>40</b>	<b>60</b>	<b>50</b>
Fluorene	86-73-7	10	µg/kg	<b>70</b>	<b>120</b>	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<b>30</b>	<b>20</b>	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<b>90</b>	<b>180</b>	<b>10</b>	<10	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_W_SS04	VR_W_SS03	VR_V_SS02	VR_T_SS01	VR_V_SS01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-001	ES1405360-002	ES1405360-003	ES1405360-004	ES1405360-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	30	50	<10	<10	<10
Phenanthrene	85-01-8	10	µg/kg	590	1080	40	40	50
Pyrene	129-00-0	10	µg/kg	310	470	70	60	50
^ Sum of PAHs	----	10	µg/kg	2970	5050	280	310	280
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	210	290	20	20	20
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	210	290	30	30	30
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	210	290	40	40	40
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.0	86.6	83.0	88.2	89.7
2-Chlorophenol-D4	93951-73-6	0.1	%	82.5	87.8	84.3	87.2	89.7
2,4,6-Tribromophenol	118-79-6	0.1	%	71.8	71.3	67.4	72.5	72.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	81.6	84.7	79.7	86.0	88.2
Anthracene-d10	1719-06-8	0.1	%	89.2	93.5	87.5	93.6	96.5
4-Terphenyl-d14	1718-51-0	0.1	%	83.2	88.3	82.2	88.9	92.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.4	86.2	111	88.7	94.0
Toluene-D8	2037-26-5	0.1	%	104	99.5	114	104	119
4-Bromofluorobenzene	460-00-4	0.1	%	80.6	78.1	88.2	82.5	91.6
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	77.5	82.2	88.0	74.0	80.4
Anthracene-d10	1719-06-8	0.1	%	80.6	84.5	90.9	74.7	89.6
4-Terphenyl-d14	1718-51-0	0.1	%	84.4	89.7	104	82.2	99.0





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D02_110314_JD	VR_T_SS03	VR_W_SS01	VR_V_SS03	D03_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-006	ES1405360-007	ES1405360-008	ES1405360-009	ES1405360-010
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	37	5	29	64	58
+150µm	----	1	%	33	4	18	50	54
+300µm	----	1	%	28	4	10	33	44
+425µm	----	1	%	27	4	8	16	36
+600µm	----	1	%	26	3	8	6	29
+1180µm	----	1	%	25	2	7	<1	22
+2.36mm	----	1	%	24	<1	6	<1	16
+4.75mm	----	1	%	22	<1	4	<1	9
+9.5mm	----	1	%	16	<1	1	<1	<1
+19.0mm	----	1	%	10	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.5	8.3	8.3	8.6	8.8
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	62.7	72.9	63.3	44.9	58.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	63	95	71	36	42
Sand (>75 µm)	----	1	%	13	5	23	64	42
Gravel (>2mm)	----	1	%	24	<1	6	<1	16
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Barium	7440-39-3	0.1	mg/kg	7.2	8.9	9.8	4.8	7.7
Arsenic	7440-38-2	0.1	mg/kg	13.5	16.2	5.6	7.4	9.8
Cobalt	7440-48-4	0.1	mg/kg	6.2	7.5	4.9	5.1	7.7
Beryllium	7440-41-7	0.1	mg/kg	1.0	1.1	0.6	0.3	1.0
Boron	7440-42-8	5	mg/kg	106	154	59	47	56
Manganese	7439-96-5	0.1	mg/kg	261	398	202	158	284
Cadmium	7440-43-9	0.1	mg/kg	0.9	3.0	0.8	0.4	0.4
Chromium	7440-47-3	0.1	mg/kg	16.1	22.6	14.8	11.9	15.6
Copper	7440-50-8	0.1	mg/kg	30.6	51.9	70.1	24.5	33.1
Vanadium	7440-62-2	1	mg/kg	38	54	28	26	30
Lead	7439-92-1	0.1	mg/kg	15.3	23.1	15.2	11.9	16.3



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D02_110314_JD	VR_T_SS03	VR_W_SS01	VR_V_SS03	D03_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-006	ES1405360-007	ES1405360-008	ES1405360-009	ES1405360-010
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Molybdenum	7439-98-7	0.1	mg/kg	3.1	3.4	2.8	0.7	1.0
Nickel	7440-02-0	0.1	mg/kg	7.5	9.9	8.2	5.5	7.3
Selenium	7782-49-2	1	mg/kg	2	4	3	2	2
Thallium	7440-28-0	0.1	mg/kg	<0.1	0.2	<0.1	<0.1	0.2
Zinc	7440-66-6	0.5	mg/kg	86.1	140	122	78.7	113
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	1.55	4.70	5.63	1.03	0.94
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	<2	<1	<2
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	<0.8	<0.5	<0.8
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	160	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	260	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	220	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D02_110314_JD	VR_T_SS03	VR_W_SS01	VR_V_SS03	D03_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-006	ES1405360-007	ES1405360-008	ES1405360-009	ES1405360-010
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	220	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	20	130	500	30	40
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	20	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	30	80	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	20	80	210	20	20
Benzo(a)pyrene	50-32-8	10	µg/kg	20	60	130	10	10
Benzo(b)fluoranthene	205-99-2	10	µg/kg	20	70	160	20	20
Benzo(e)pyrene	192-97-2	10	µg/kg	20	50	120	10	20
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	30	30	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	10	30	60	<10	10
Chrysene	218-01-9	10	µg/kg	20	90	220	10	20
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	50	160	370	40	50
Fluorene	86-73-7	10	µg/kg	<10	20	60	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	20	20	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<10	30	120	<10	10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D02_110314_JD	VR_T_SS03	VR_W_SS01	VR_V_SS03	D03_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-006	ES1405360-007	ES1405360-008	ES1405360-009	ES1405360-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	10	10	<10	<10
Phenanthrene	85-01-8	10	µg/kg	40	180	580	40	50
Pyrene	129-00-0	10	µg/kg	50	140	290	40	50
^ Sum of PAHs	----	10	µg/kg	270	1130	2990	220	300
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	20	80	190	10	20
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	30	90	190	20	20
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	40	90	190	30	30
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.9	90.2	82.0	82.9	82.7
2-Chlorophenol-D4	93951-73-6	0.1	%	86.6	89.7	83.1	82.3	83.0
2,4,6-Tribromophenol	118-79-6	0.1	%	68.6	77.9	67.6	63.8	59.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.3	89.7	81.7	83.3	80.9
Anthracene-d10	1719-06-8	0.1	%	93.5	99.1	90.2	91.1	88.0
4-Terphenyl-d14	1718-51-0	0.1	%	89.5	94.5	85.1	87.0	83.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.7	79.6	94.2	91.6	89.5
Toluene-D8	2037-26-5	0.1	%	102	96.2	94.3	100	122
4-Bromofluorobenzene	460-00-4	0.1	%	81.5	75.0	73.6	87.5	86.3
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.5	85.2	96.0	91.5	90.6
Anthracene-d10	1719-06-8	0.1	%	81.4	94.4	97.8	100	94.2
4-Terphenyl-d14	1718-51-0	0.1	%	87.6	97.3	105	113	104



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01_110314_JD	VR_T_SS02	VR_W_SS02	TSP 1	TB
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-011	ES1405360-012	ES1405360-013	ES1405360-014	ES1405360-015
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	56	56	73	----	----
+150µm	----	1	%	48	53	54	----	----
+300µm	----	1	%	43	43	51	----	----
+425µm	----	1	%	35	35	50	----	----
+600µm	----	1	%	29	29	48	----	----
+1180µm	----	1	%	23	23	46	----	----
+2.36mm	----	1	%	17	17	41	----	----
+4.75mm	----	1	%	10	10	33	----	----
+9.5mm	----	1	%	4	5	9	----	----
+19.0mm	----	1	%	<1	<1	<1	----	----
+37.5mm	----	1	%	<1	<1	<1	----	----
+75.0mm	----	1	%	<1	<1	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.8	8.8	8.6	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	56.2	58.1	50.2	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	44	44	27	----	----
Sand (>75 µm)	----	1	%	40	40	32	----	----
Gravel (>2mm)	----	1	%	17	17	41	----	----
Cobbles (>6cm)	----	1	%	<1	<1	<1	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Barium	7440-39-3	0.1	mg/kg	6.8	7.8	6.6	----	----
Arsenic	7440-38-2	0.1	mg/kg	9.7	12.1	7.7	----	----
Cobalt	7440-48-4	0.1	mg/kg	8.2	9.0	4.0	----	----
Beryllium	7440-41-7	0.1	mg/kg	1.0	0.5	0.7	----	----
Boron	7440-42-8	5	mg/kg	52	52	46	----	----
Manganese	7439-96-5	0.1	mg/kg	283	304	155	----	----
Cadmium	7440-43-9	0.1	mg/kg	0.4	0.4	0.6	----	----
Chromium	7440-47-3	0.1	mg/kg	15.1	16.4	8.5	----	----
Copper	7440-50-8	0.1	mg/kg	33.6	34.9	14.5	----	----
Vanadium	7440-62-2	1	mg/kg	29	34	22	----	----
Lead	7439-92-1	0.1	mg/kg	17.0	17.6	7.4	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01_110314_JD	VR_T_SS02	VR_W_SS02	TSP 1	TB
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-011	ES1405360-012	ES1405360-013	ES1405360-014	ES1405360-015
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Molybdenum	7439-98-7	0.1	mg/kg	0.9	1.4	6.3	----	----
Nickel	7440-02-0	0.1	mg/kg	7.1	7.6	5.1	----	----
Selenium	7782-49-2	1	mg/kg	2	2	2	----	----
Thallium	7440-28-0	0.1	mg/kg	0.3	0.6	0.2	----	----
Zinc	7440-66-6	0.5	mg/kg	119	122	39.3	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.99	0.95	15.6	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	<2	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	<0.8	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	180	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	180	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	220	----	<100





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01_110314_JD	VR_T_SS02	VR_W_SS02	TSP 1	TB
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-011	ES1405360-012	ES1405360-013	ES1405360-014	ES1405360-015
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	220	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	11.4	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	1.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	7.2	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	3.0	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	10.2	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	23.4	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	----	----
2-Methylnaphthalene	91-57-6	10	µg/kg	50	30	1360	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	----	----
Acenaphthene	83-32-9	10	µg/kg	<10	<10	50	----	----
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	----	----
Anthracene	120-12-7	10	µg/kg	10	<10	170	----	----
Benz(a)anthracene	56-55-3	10	µg/kg	40	30	320	----	----
Benzo(a)pyrene	50-32-8	10	µg/kg	30	20	160	----	----
Benzo(b)fluoranthene	205-99-2	10	µg/kg	50	30	170	----	----
Benzo(e)pyrene	192-97-2	10	µg/kg	30	20	140	----	----
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	20	10	20	----	----
Benzo(k)fluoranthene	207-08-9	10	µg/kg	20	10	80	----	----
Chrysene	218-01-9	10	µg/kg	40	30	330	----	----
Coronene	191-07-1	10	µg/kg	<10	<10	<10	----	----
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	10	----	----
Fluoranthene	206-44-0	10	µg/kg	80	50	560	----	----
Fluorene	86-73-7	10	µg/kg	<10	<10	120	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	10	<10	20	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01_110314_JD	VR_T_SS02	VR_W_SS02	TSP 1	TB
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405360-011	ES1405360-012	ES1405360-013	ES1405360-014	ES1405360-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	----	----
Naphthalene	91-20-3	10	µg/kg	20	10	340	----	----
Perylene	198-55-0	10	µg/kg	10	<10	<10	----	----
Phenanthrene	85-01-8	10	µg/kg	70	50	1100	----	----
Pyrene	129-00-0	10	µg/kg	70	50	430	----	----
^ Sum of PAHs	----	10	µg/kg	550	340	5380	----	----
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	40	30	230	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	50	30	230	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	50	40	230	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.3	95.9	80.1	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	83.2	96.0	81.2	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	56.5	73.0	60.9	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	79.8	97.0	80.3	----	----
Anthracene-d10	1719-06-8	0.1	%	86.8	104	87.6	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	83.4	99.3	82.3	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	77.9	83.2	97.8	89.9	105
Toluene-D8	2037-26-5	0.1	%	85.3	81.9	92.9	91.3	82.9
4-Bromofluorobenzene	460-00-4	0.1	%	74.2	76.9	73.9	96.4	90.9
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	107	85.9	85.7	----	----
Anthracene-d10	1719-06-8	0.1	%	112	85.4	88.7	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	124	96.9	93.2	----	----



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				<b>TSC 1</b>	----	----	----	----
				11-MAR-2014 15:00	----	----	----	----
				<b>ES1405360-016</b>	----	----	----	----
<i>Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>					
<b>EP080: BTEXN</b>								
<b>Benzene</b>	71-43-2	0.2	mg/kg	<b>0.6</b>	----	----	----	----
<b>Toluene</b>	108-88-3	0.5	mg/kg	<b>14.3</b>	----	----	----	----
<b>Ethylbenzene</b>	100-41-4	0.5	mg/kg	<b>1.6</b>	----	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	0.5	mg/kg	<b>7.6</b>	----	----	----	----
<b>ortho-Xylene</b>	95-47-6	0.5	mg/kg	<b>3.2</b>	----	----	----	----
<b>Total Xylenes</b>	1330-20-7	0.5	mg/kg	<b>10.8</b>	----	----	----	----
<b>Sum of BTEX</b>	----	0.2	mg/kg	<b>27.3</b>	----	----	----	----
<b>Naphthalene</b>	91-20-3	1	mg/kg	<b>&lt;1</b>	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>104</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>75.9</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>84.7</b>	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	26.9	131
Anthracene-d10	1719-06-8	35	139
4-Terphenyl-d14	1718-51-0	29.7	164

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405360</b>	Page	: 1 of 12
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: JD	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
		Sydney Organics





## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3344956)</b>									
ES1405360-001	VR_W_SS04	EA002: pH Value	----	0.1	pH Unit	8.3	8.4	0.0	0% - 20%
ES1405360-011	T01_110314_JD	EA002: pH Value	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3338019)</b>									
ES1405320-016	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.8	24.4	2.5	0% - 20%
ES1405360-005	VR_V_SS01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	59.6	60.0	0.6	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3338020)</b>									
ES1405361-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	22.0	22.4	1.9	0% - 20%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3348830)</b>									
ES1405360-001	VR_W_SS04	EG020X-T: Barium	7440-39-3	0.1	mg/kg	15.6	14.0	10.8	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	8.0	7.3	8.2	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	396	392	1.2	0% - 20%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	44	42	4.1	0% - 20%
ES1405360-010	D03_110314_JD	EG020X-T: Barium	7440-39-3	0.1	mg/kg	7.7	6.5	16.6	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	7.7	9.4	19.6	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	284	262	8.0	0% - 20%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	30	26	12.3	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3348829)</b>									
ES1405360-001	VR_W_SS04	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.0	No Limit
ES1405360-010	D03_110314_JD	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3352228)</b>									
ES1405360-001	VR_W_SS04	EP003: Total Organic Carbon	----	0.02	%	5.23	5.25	0.4	0% - 20%
ES1405360-011	T01_110314_JD	EP003: Total Organic Carbon	----	0.02	%	0.99	1.00	1.2	0% - 20%
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3338221)</b>									
ES1405360-001	VR_W_SS04	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3338221) - continued</b>										
ES1405360-011	T01_110314_JD	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	0.0	No Limit	
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	0.0	No Limit	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit			
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405360-011	T01_110314_JD	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3338220)</b>										
ES1405360-001	VR_W_SS04	EP071: C15 - C28 Fraction	----	100	mg/kg	220	250	11.4	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405360-011	T01_110314_JD	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405360-011	T01_110314_JD	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3338220)</b>										
ES1405360-001	VR_W_SS04	EP071: >C16 - C34 Fraction	----	100	mg/kg	290	310	5.5	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405360-011	T01_110314_JD	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3337724) - continued</b>										
ES1405360-011	T01_110314_JD	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3338180)</b>										
ES1405360-001	VR_W_SS04	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	460	480	5.1	0% - 20%	
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Acenaphthene	83-32-9	10	µg/kg	20	30	0.0	No Limit	
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Anthracene	120-12-7	10	µg/kg	<10	90	160	No Limit	
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	220	220	0.0	0% - 20%	
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	140	140	0.0	0% - 50%	
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	150	140	6.8	0% - 50%	
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	130	120	0.0	0% - 50%	
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	40	40	0.0	No Limit	
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	60	70	17.7	No Limit	
		EP132: Chrysene	218-01-9	10	µg/kg	220	220	0.0	0% - 20%	
		EP132: Coronene	191-07-1	10	µg/kg	10	<10	0.0	No Limit	
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	20	20	0.0	No Limit	
		EP132: Fluoranthene	206-44-0	10	µg/kg	380	380	0.0	0% - 20%	
		EP132: Fluorene	86-73-7	10	µg/kg	70	70	0.0	No Limit	
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	30	30	0.0	No Limit	
		EP132: Naphthalene	91-20-3	10	µg/kg	90	100	0.0	0% - 50%	
		EP132: Perylene	198-55-0	10	µg/kg	30	20	0.0	No Limit	
		EP132: Phenanthrene	85-01-8	10	µg/kg	590	590	0.0	0% - 20%	
		EP132: Pyrene	129-00-0	10	µg/kg	310	310	0.0	0% - 20%	
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit	
ES1405360-011	T01_110314_JD	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	50	40	0.0	No Limit	
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Anthracene	120-12-7	10	µg/kg	10	<10	0.0	No Limit	
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	40	20	57.0	No Limit	
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	30	20	52.7	No Limit	
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	50	20	70.9	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3338180) - continued</b>									
ES1405360-011	T01_110314_JD	EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	30	20	61.6	No Limit
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	20	<10	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	20	10	0.0	No Limit
		EP132: Chrysene	218-01-9	10	µg/kg	40	20	54.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	80	50	41.8	No Limit
		EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	10	µg/kg	10	<10	0.0	No Limit
		EP132: Naphthalene	91-20-3	10	µg/kg	20	10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	10	<10	0.0	No Limit
		EP132: Phenanthrene	85-01-8	10	µg/kg	70	50	26.2	No Limit
		EP132: Pyrene	129-00-0	10	µg/kg	70	50	34.7	No Limit
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348828)</b>									
EG020T: Arsenic	7440-38-2	0.1	mg/kg	<0.1	21.7 mg/kg	116	70	130	
EG020T: Beryllium	7440-41-7	0.1	mg/kg	<0.1	5.63 mg/kg	118	70	130	
EG020T: Boron	7440-42-8	0.1	mg/kg	<0.5	----	----	----	----	
EG020T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	4.64 mg/kg	112	70	130	
EG020T: Chromium	7440-47-3	0.1	mg/kg	<0.1	43.9 mg/kg	103	70	130	
EG020T: Copper	7440-50-8	0.1	mg/kg	<0.1	32.0 mg/kg	117	70	130	
EG020T: Lead	7439-92-1	0.1	mg/kg	<0.1	40.0 mg/kg	108	70	130	
EG020T: Molybdenum	7439-98-7	0.1	mg/kg	<0.1	7.9 mg/kg	111	70	130	
EG020T: Nickel	7440-02-0	0.1	mg/kg	<0.1	55.0 mg/kg	115	70	130	
EG020T: Selenium	7782-49-2	1	mg/kg	<1	5.37 mg/kg	75.0	70	130	
EG020T: Thallium	7440-28-0	0.1	mg/kg	<0.1	5.96 mg/kg	89.8	70	130	
EG020T: Zinc	7440-66-6	0.5	mg/kg	<0.5	60.8 mg/kg	114	70	130	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348830)</b>									
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	143 mg/kg	107	70	134	
EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	<0.1	16.0 mg/kg	121	77	131	
EG020X-T: Manganese	7439-96-5	0.1	mg/kg	<0.1	130 mg/kg	124	74	134	
EG020X-T: Vanadium	7440-62-2	1	mg/kg	<1	29.6 mg/kg	118	87	129	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.3	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3352228)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	1.94 %	108	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3338221)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	89.4	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	90.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	89.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	94.1	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.7	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.9	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	80.9	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	84.5	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.7	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	77.9	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	81.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.8	10	57	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3337724)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	75.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3338220)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	104	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	110	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	110	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3337724)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	74.7	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3338220)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	91.3	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	131	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	106	63	131	
<b>EP080: BTEXN (QCLot: 3337724)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	82.7	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	91.0	62	138	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338180)</b>									
EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	100 µg/kg	68.2	36	120	
EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	100 µg/kg	82.3	51	135	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	100 µg/kg	84.9	14.9	157	
EP132: Acenaphthene	83-32-9	10	µg/kg	<10	100 µg/kg	77.1	57	125	
EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	100 µg/kg	93.3	48	132	
EP132: Anthracene	120-12-7	10	µg/kg	<10	100 µg/kg	75.0	50	114	
EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	100 µg/kg	82.1	66	124	
EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	100 µg/kg	81.4	43	125	
EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	100 µg/kg	79.1	64	130	
EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	100 µg/kg	88.2	55	141	
EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	100 µg/kg	84.4	46	134	
EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	100 µg/kg	86.6	65	129	
EP132: Chrysene	218-01-9	10	µg/kg	<10	100 µg/kg	86.8	69	129	
EP132: Coronene	191-07-1	10	µg/kg	<10	100 µg/kg	109	26.9	149	
EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	100 µg/kg	76.2	50	134	
EP132: Fluoranthene	206-44-0	10	µg/kg	<10	100 µg/kg	80.6	68	130	
EP132: Fluorene	86-73-7	10	µg/kg	<10	100 µg/kg	77.9	57	131	





Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338180) - continued</b>								
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	100 µg/kg	78.8	46	138
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	100 µg/kg	111	50	138
EP132: Naphthalene	91-20-3	10	µg/kg	<10	100 µg/kg	63.9	50	132
EP132: Perylene	198-55-0	10	µg/kg	<10	100 µg/kg	75.6	48	132
EP132: Phenanthrene	85-01-8	10	µg/kg	<10	100 µg/kg	83.5	67	127
EP132: Pyrene	129-00-0	10	µg/kg	<10	100 µg/kg	82.5	66	130

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>							
ES1405360-001	VR_W_SS04	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3338221)</b>							
ES1405360-001	VR_W_SS04	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	34.8	20	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3337724)</b>							
ES1405360-001	VR_W_SS04	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.5	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3338220)</b>							
ES1405360-001	VR_W_SS04	EP071: C10 - C14 Fraction	----	640 mg/kg	95.1	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.8	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	92.9	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3337724)</b>							
ES1405360-001	VR_W_SS04	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.4	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3338220)</b>							
ES1405360-001	VR_W_SS04	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	122	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	87.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	78.2	52	132
<b>EP080: BTEXN (QCLot: 3337724)</b>							
ES1405360-001	VR_W_SS04	EP080: Benzene	71-43-2	2.5 mg/kg	74.1	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	73.8	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3337724) - continued</b>							
ES1405360-001	VR_W_SS04	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	76.8	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	70	130
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338180)</b>							
ES1405360-001	VR_W_SS04	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	62.5	15	119
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	56.5	49	129
		EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	135	14.9	157
		EP132: Acenaphthene	83-32-9	100 µg/kg	71.6	57	125
		EP132: Acenaphthylene	208-96-8	100 µg/kg	75.6	37	123
		EP132: Anthracene	120-12-7	100 µg/kg	95.9	50	114
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	# 65.8	66	124
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	60.4	43	125
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	# 31.1	64	130
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	68.2	43	145
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	# 42.0	46	134
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	68.9	65	129
		EP132: Chrysene	218-01-9	100 µg/kg	# 55.2	69	129
		EP132: Coronene	191-07-1	100 µg/kg	55.9	26.9	149
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	58.4	50	134
		EP132: Fluoranthene	206-44-0	100 µg/kg	# 57.8	68	130
		EP132: Fluorene	86-73-7	100 µg/kg	70.9	57	131
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	53.7	46	138
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	105	50	138
		EP132: Naphthalene	91-20-3	100 µg/kg	# 44.0	48	126
		EP132: Perylene	198-55-0	100 µg/kg	63.4	37	125
EP132: Phenanthrene	85-01-8	100 µg/kg	# 49.7	67	127		
EP132: Pyrene	129-00-0	100 µg/kg	# 59.1	66	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.5	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.4	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3337724)</b>										
ES1405360-001	VR_W_SS04	EP080: Benzene	71-43-2	2.5 mg/kg	74.1	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	73.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.2	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.8	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	77.8	----	70	130	----	----
		EP080: Naphthalene	95-47-6	2.5 mg/kg	71.0	----	70	130	----	----
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338180)</b>										
ES1405360-001	VR_W_SS04	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	62.5	----	15	119	----	----
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	56.5	----	49	129	----	----
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	135	----	14.9	157	----	----
		EP132: Acenaphthene	83-32-9	100 µg/kg	71.6	----	57	125	----	----
		EP132: Acenaphthylene	208-96-8	100 µg/kg	75.6	----	37	123	----	----
		EP132: Anthracene	120-12-7	100 µg/kg	95.9	----	50	114	----	----
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	# 65.8	----	66	124	----	----
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	60.4	----	43	125	----	----
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	# 31.1	----	64	130	----	----
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	68.2	----	43	145	----	----
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	# 42.0	----	46	134	----	----
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	68.9	----	65	129	----	----
		EP132: Chrysene	218-01-9	100 µg/kg	# 55.2	----	69	129	----	----
		EP132: Coronene	191-07-1	100 µg/kg	55.9	----	26.9	149	----	----
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	58.4	----	50	134	----	----
		EP132: Fluoranthene	206-44-0	100 µg/kg	# 57.8	----	68	130	----	----
		EP132: Fluorene	86-73-7	100 µg/kg	70.9	----	57	131	----	----
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	53.7	----	46	138	----	----
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	105	----	50	138	----	----
		EP132: Naphthalene	91-20-3	100 µg/kg	# 44.0	----	48	126	----	----
		EP132: Perylene	198-55-0	100 µg/kg	63.4	----	37	125	----	----
EP132: Phenanthrene	85-01-8	100 µg/kg	# 49.7	----	67	127	----	----		
EP132: Pyrene	129-00-0	100 µg/kg	# 59.1	----	66	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3338220)</b>										
ES1405360-001	VR_W_SS04	EP071: C10 - C14 Fraction	----	640 mg/kg	95.1	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.8	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	92.9	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3338220)</b>										
ES1405360-001	VR_W_SS04	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	122	----	73	137	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3338220) - continued</b>										
ES1405360-001	VR_W_SS04	EP071: >C16 - C34 Fraction	----	4800 mg/kg	87.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	78.2	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3338221)</b>										
ES1405360-001	VR_W_SS04	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.2	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	34.8	----	20	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>										
ES1405360-001	VR_W_SS04	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405360</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: JD	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b>								
VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	---	---	---	13-MAR-2014	25-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Pulp Bag (EA150)</b>								
VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	---	07-SEP-2014	---	24-MAR-2014	17-SEP-2014	✓





Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Pulp Bag (EA150)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	---	07-SEP-2014	----	24-MAR-2014	17-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Soil Glass Jar - Unpreserved (EG020T)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	20-MAR-2014	07-SEP-2014	✓	20-MAR-2014	07-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Soil Glass Jar - Unpreserved (EG020X-T)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	20-MAR-2014	07-SEP-2014	✓	20-MAR-2014	07-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	20-MAR-2014	08-APR-2014	✓	21-MAR-2014	08-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	21-MAR-2014	08-APR-2014	✓	21-MAR-2014	08-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02,	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02, TB	11-MAR-2014	13-MAR-2014	25-MAR-2014	✓	17-MAR-2014	22-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	13-MAR-2014	25-MAR-2014	✓	17-MAR-2014	22-APR-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02, TB,	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02, TSP 1, TSC 1	11-MAR-2014	13-MAR-2014	25-MAR-2014	✓	17-MAR-2014	25-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02,	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02, TB	11-MAR-2014	13-MAR-2014	25-MAR-2014	✓	17-MAR-2014	25-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP132)</b>								
VR_W_SS04, VR_V_SS02, VR_V_SS01, VR_T_SS03, VR_V_SS03, T01_110314_JD, VR_W_SS02	VR_W_SS03, VR_T_SS01, D02_110314_JD, VR_W_SS01, D03_110314_JD, VR_T_SS02,	11-MAR-2014	13-MAR-2014	25-MAR-2014	✓	21-MAR-2014	22-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	24	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Total Metals by ICP-MS	EG020T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Total Metals by ICP-MS	EG020T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Total Metals by ICP-MS	EG020T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020) (ICPMS) Metals in solids are determined following an appropriate acid digestion. The ICPMS technique ionizes selected elements. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass / charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	SOIL	USEPA 8270 GCMS Capillary column, SIM mode.
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids/ Acetylation	ORG17A-AC	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Benz(a)anthracene</b>	56-55-3	65.8 %	66-124%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Benzo(b)fluoranthene</b>	205-99-2	31.1 %	64-130%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Benzo(g,h,i)perylene</b>	191-24-2	42.0 %	46-134%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Chrysene</b>	218-01-9	55.2 %	69-129%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Fluoranthene</b>	206-44-0	57.8 %	68-130%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Naphthalene</b>	91-20-3	44.0 %	48-126%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Phenanthrene</b>	85-01-8	49.7 %	67-127%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405360-001	VR_W_SS04	<b>Pyrene</b>	129-00-0	59.1 %	66-130%	<b>Recovery less than lower data quality objective</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1405360</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: SYMPHONY DELTANORTH	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: symphony.deltanorth@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

**Dates**

<b>Date Samples Received</b>	: 12-MAR-2014	<b>Issue Date</b>	: 13-MAR-2014 12:38
<b>Client Requested Due Date</b>	: 24-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>24-MAR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 7.2°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 16
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 16

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EP003 Total Organic Carbon (TOC ) in Soil SOIL - EP075 SIM Phenols only SIM - Phenols only SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 ((CPMS not Bre) Standard 13 Metals by ICPMS	SOIL - S-04 TRH/BTEXN
ES1405360-001	11-MAR-2014 15:00	VR_W_SS04	✓	✓	✓	✓
ES1405360-002	11-MAR-2014 15:00	VR_W_SS03	✓	✓	✓	✓
ES1405360-003	11-MAR-2014 15:00	VR_V_SS02	✓	✓	✓	✓
ES1405360-004	11-MAR-2014 15:00	VR_T_SS01	✓	✓	✓	✓
ES1405360-005	11-MAR-2014 15:00	VR_V_SS01	✓	✓	✓	✓
ES1405360-006	11-MAR-2014 15:00	D02_110314_JD	✓	✓	✓	✓
ES1405360-007	11-MAR-2014 15:00	VR_T_SS03	✓	✓	✓	✓
ES1405360-008	11-MAR-2014 15:00	VR_W_SS01	✓	✓	✓	✓
ES1405360-009	11-MAR-2014 15:00	VR_V_SS03	✓	✓	✓	✓
ES1405360-010	11-MAR-2014 15:00	D03_110314_JD	✓	✓	✓	✓
ES1405360-011	11-MAR-2014 15:00	T01_110314_JD	✓	✓	✓	✓
ES1405360-012	11-MAR-2014 15:00	VR_T_SS02	✓	✓	✓	✓
ES1405360-013	11-MAR-2014 15:00	VR_W_SS02	✓	✓	✓	✓
ES1405360-014	11-MAR-2014 15:00	TSP 1				✓
ES1405360-015	11-MAR-2014 15:00	TB				✓
ES1405360-016	11-MAR-2014 15:00	TSC 1				✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## *Requested Deliverables*

### **SYMPHONY DELTACOAST**

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### **SYMPHONY DELTANORTH**

- *AU Certificate of Analysis - NATA	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC)	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT	Email	symphony.deltanorth@erm.com
- EDI Format - XTab	Email	symphony.deltanorth@erm.com

### **THE ACCOUNTS PAYABLE**

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405360**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : SYMPHONY DELTANORTH</b></p> <p><b>Address : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : symphony.deltanorth@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
--	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : JD</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 12-MAR-2014</b></p> <p><b>Client Requested Due Date : 24-MAR-2014</b></p>	<p><b>Issue Date : 17-MAR-2014 16:00</b></p> <p><b>Scheduled Reporting Date : <b>24-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 7.2°C - Ice present</b></p> <p><b>No. of samples received : 16</b></p> <p><b>No. of samples analysed : 16</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EP003 Total Organic Carbon (TOC ) in Soil SOIL - EP07's SIM Phenols only SIM - Phenols only SOIL - EP080 BTEXN	SOIL - EPI32B Ultratrace PAH's SOIL - S-03 (ICPMS not Brie) Standard 13 Metals by ICPMS SOIL - S-04 TRH/BTEXN	SOIL - EPI32B Ultratrace PAH's	SOIL - S-03 (ICPMS not Brie) Standard 13 Metals by ICPMS	SOIL - S-04 TRH/BTEXN
ES1405360-001	11-MAR-2014 15:00	VR_W_SS04	✓	✓	✓	✓	✓	✓
ES1405360-002	11-MAR-2014 15:00	VR_W_SS03	✓	✓	✓	✓	✓	✓
ES1405360-003	11-MAR-2014 15:00	VR_V_SS02	✓	✓	✓	✓	✓	✓
ES1405360-004	11-MAR-2014 15:00	VR_T_SS01	✓	✓	✓	✓	✓	✓
ES1405360-005	11-MAR-2014 15:00	VR_V_SS01	✓	✓	✓	✓	✓	✓
ES1405360-006	11-MAR-2014 15:00	D02_110314_JD	✓	✓	✓	✓	✓	✓
ES1405360-007	11-MAR-2014 15:00	VR_T_SS03	✓	✓	✓	✓	✓	✓
ES1405360-008	11-MAR-2014 15:00	VR_W_SS01	✓	✓	✓	✓	✓	✓
ES1405360-009	11-MAR-2014 15:00	VR_V_SS03	✓	✓	✓	✓	✓	✓
ES1405360-010	11-MAR-2014 15:00	D03_110314_JD	✓	✓	✓	✓	✓	✓
ES1405360-011	11-MAR-2014 15:00	T01_110314_JD	✓	✓	✓	✓	✓	✓
ES1405360-012	11-MAR-2014 15:00	VR_T_SS02	✓	✓	✓	✓	✓	✓
ES1405360-013	11-MAR-2014 15:00	VR_W_SS02	✓	✓	✓	✓	✓	✓
ES1405360-014	11-MAR-2014 15:00	TSP 1				✓		
ES1405360-015	11-MAR-2014 15:00	TB						✓
ES1405360-016	11-MAR-2014 15:00	TSC 1				✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC)	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT	Email	symphony.deltanorth@erm.com
- EDI Format - XTab	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

LABEL/AL21 Barrow Road, Rockdale SA 5095  
 Ph. 08 8369 0890 E. alshelp@als.com.au  
 C/REGIS/ANZ 28 Stuart Street, Adelaide QLD 4053  
 Ph. 07 3243 2222 E. samples@als.com.au  
 C/REGIS/STONIC 46 Canningham Drive, Orlong QLD 4680  
 Ph. 07 4717 9500 E. phostore@als.com.au

DIAMANTY 78 Haddon Road, Mackay QLD 4740  
 Ph. 07 4944 0177 E. mackay@als.com.au  
 DIAMANTY/REGIS 74 Westall Road, Springvale VIC 3171  
 Ph. 03 8919 9000 E. samples.vic@als.com.au  
 DIAMANTY/REGIS 27 Sydney Road, Mudgee NSW 2850  
 Ph. 02 6372 6735 E. mudgee@als.com.au

NEWCASTLE 6 Ross Gunn Road, Wynd  
 Ph. 02 8983 9430 E. samples.nsw@als.com.au  
 UNO/REGIS 418 Grey Place, North Sydney  
 Ph. 02 4423 2083 E. new@als.com.au  
 OPER/REGIS 10 How Way, Malaga WA 6000  
 Ph. 08 9200 7065 E. samples.wa@als.com.au

**Environmental Division**  
**Sydney**  
**Work Order**  
**ES1405360**

6d Smithfield NSW 2164  
 6y@als.com.au  
 11 Botic QLD 4818  
 12@als.com.au  
 13 Wollongong NSW 2500  
 14@als.com.au

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** JD  
**COC emailed to ALS?** (YES / NO)  
 Email Reports to (will default to PM if no other addresses are listed): symphony.dellanorth@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.dellanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (last due date)  
 Non Standard or Urgent TAT (last due date)  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

**REINQUISHED BY:** JD  
**DATE/TIME:** 11-03-14 1900

**RECEIVED BY:** [Signature]  
**DATE/TIME:** [Signature]

**REINQUISHED BY:** [Signature]  
**DATE/TIME:** [Signature]

**RECEIVED BY:** [Signature]  
**DATE/TIME:** 10/3/14

**RECEIVED BY:** [Signature]  
**DATE/TIME:** 10/3/14

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**CONTAINER INFORMATION**

**ANALYSIS REQUIRED**

**REQUIREMENTS BY DATE:**

**Additional Information**

**Additional Information**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOCS	PCB	PFOS/PFOA	pH/CEC	PSD sieve / Leco	EC Saturated	Ultra Trace	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.	
1	VR-W-SS04	11.03.14	3	250mls 100g	3	X	X	X	X	X	X	X	X	X	X	X	X		
2	VR-W-SS03	11.03.14	0	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
3	VR-V-SS02	11.03.14	0	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
4	VR-T-SS01	11.03.14	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
5	VR-V-SS01	11.3.14	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
6	VR-V-SS02		S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
7	DD2-110314-JD	11.03.14	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
8	VR-T-SS03	11.03.14	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
9	VR-W-SS01	11	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
10	VR-V-SS03	11	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
11	DD3-110314-JD	11	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
11	TD1-110314-JD	11	S	" "	3	X	X	X	X	X	X	X	X	X	X	X	X		
<b>TOTAL</b>					33	13	13	13	13	13	13	13	13	13	13	13	13	13	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide/Cl Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 V = VOA (via HCl) Preserved; VB = VOA (via Sodium Disulphate) Preserved; VS = VOA (via Sulfuric) Preserved; AV = Airtight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation; bottle; SP = Sulfuric Preserved Plastic; F = Formaldhyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag



# Certificate of Analysis

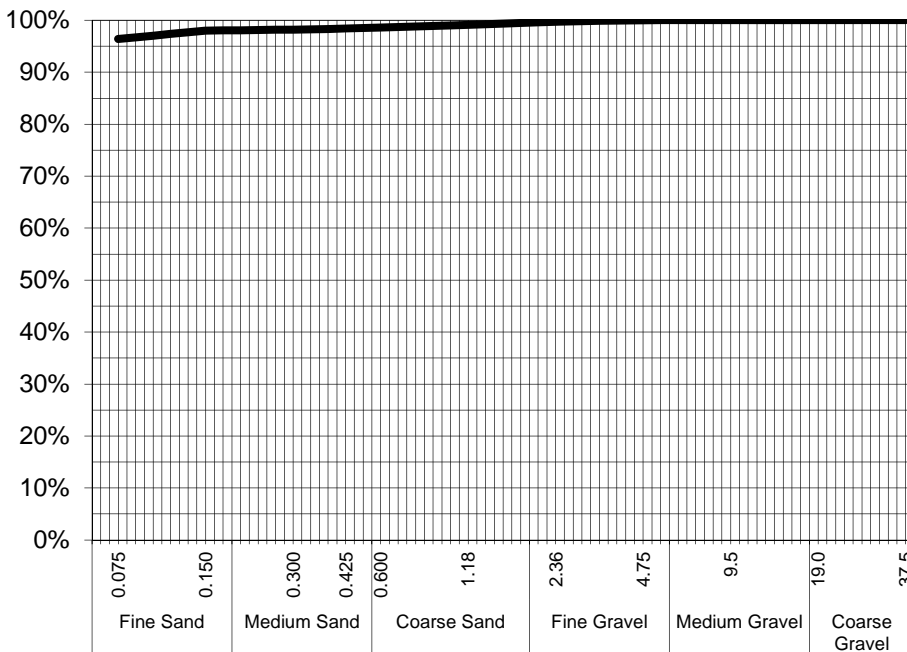
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-001 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_W\_SS04

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	98%
0.300	98%
0.150	98%
0.075	96%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

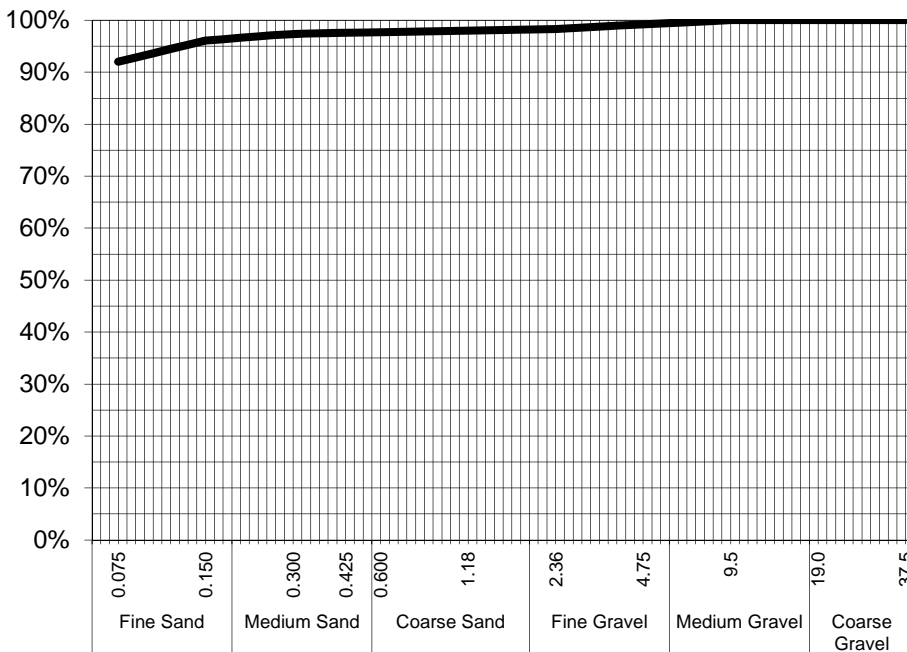
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-002 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_W\_SS03

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	98%
1.18	98%
0.600	98%
0.425	98%
0.300	97%
0.150	96%
0.075	92%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

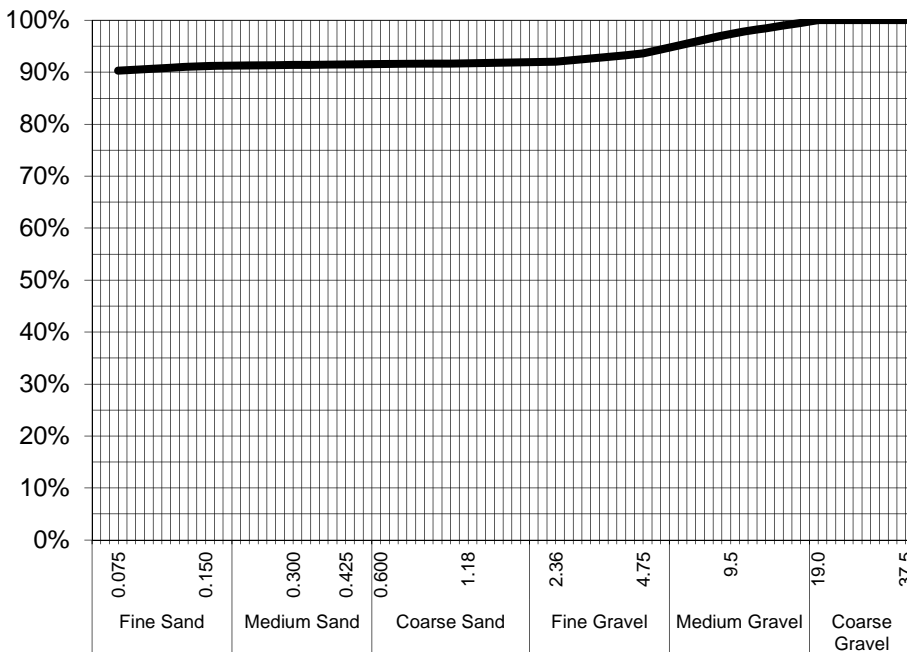
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-003 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_V\_SS02

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	97%
4.75	94%
2.36	92%
1.18	92%
0.600	92%
0.425	92%
0.300	91%
0.150	91%
0.075	90%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

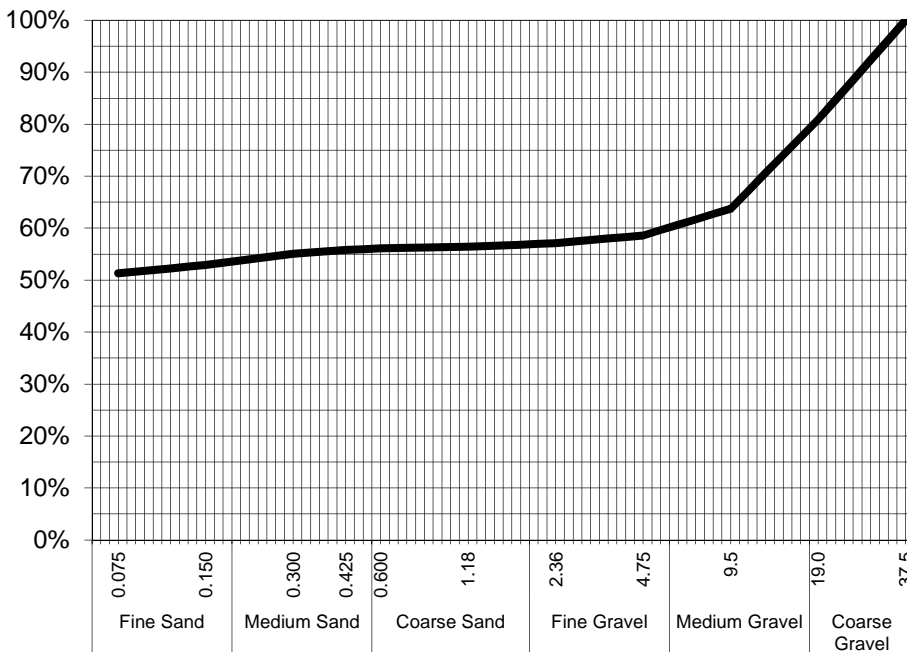
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-004 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_T\_SS01

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
37.5	100%
19.0	81%
9.5	64%
4.75	59%
2.36	57%
1.18	56%
0.600	56%
0.425	56%
0.300	55%
0.150	53%
0.075	51%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Gravel and fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

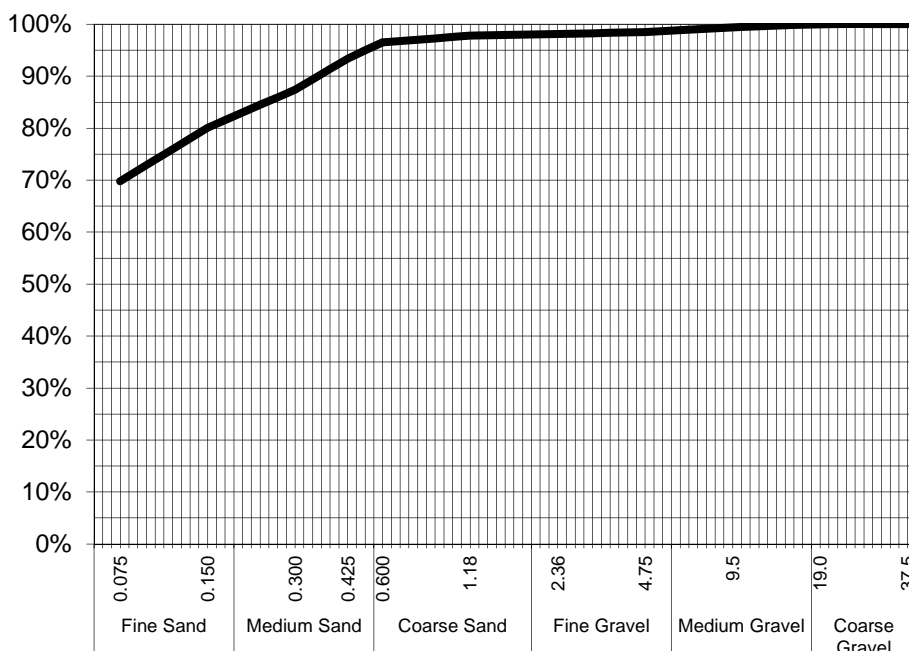
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-005 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_V\_SS01

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	99%
4.75	99%
2.36	98%
1.18	98%
0.600	97%
0.425	93%
0.300	87%
0.150	80%
0.075	70%

*Samples analysed as received.*

**Sample Comments:**

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 20-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

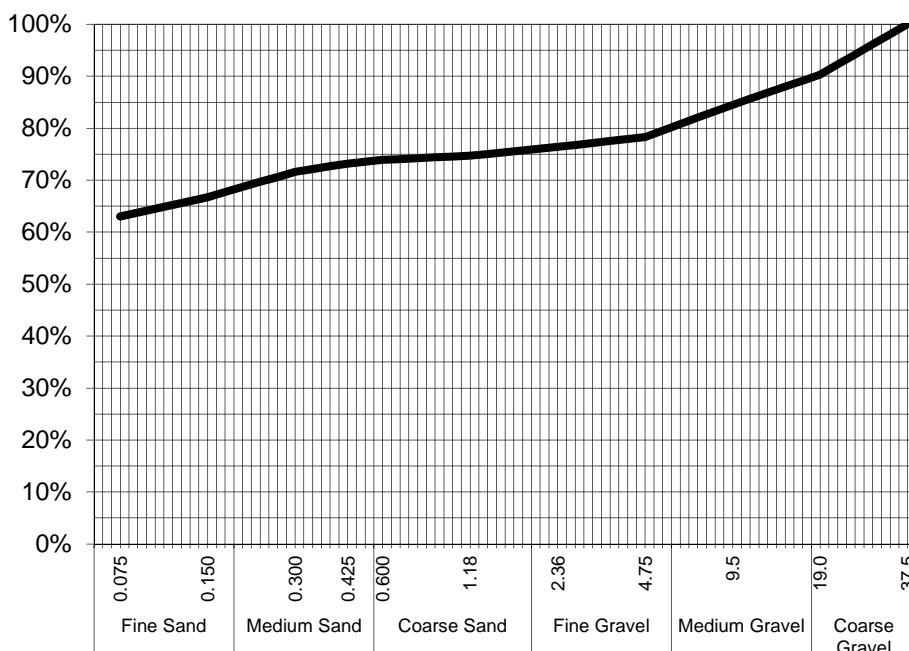
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-006 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** D02\_110314\_JD

## Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	90%
9.5	85%
4.75	78%
2.36	76%
1.18	75%
0.600	74%
0.425	73%
0.300	72%
0.150	67%
0.075	63%

Samples analysed as received.

### Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines, gravel and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 20-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

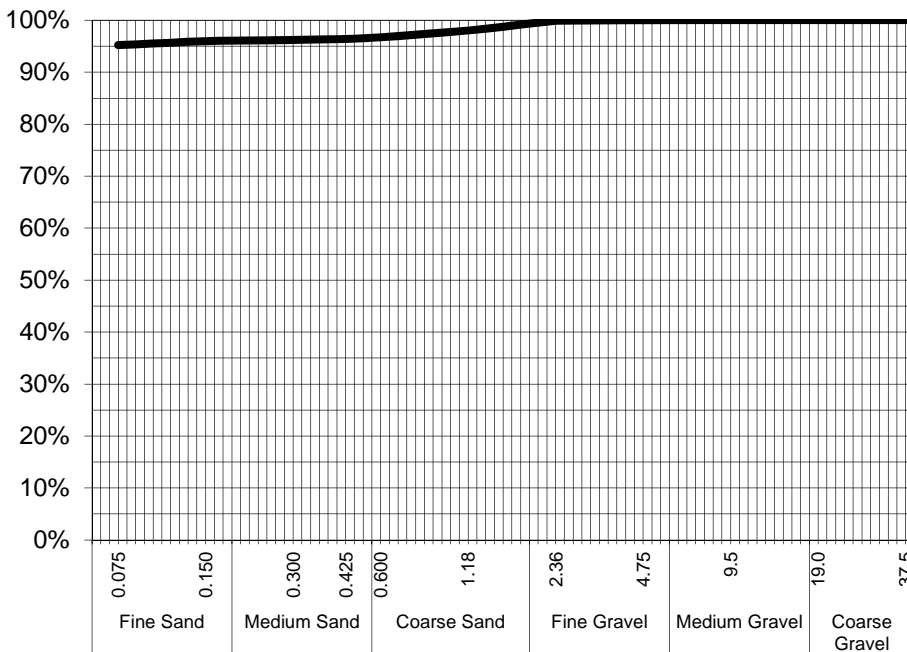
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-007 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_T\_SS03

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	98%
0.600	97%
0.425	96%
0.300	96%
0.150	96%
0.075	95%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

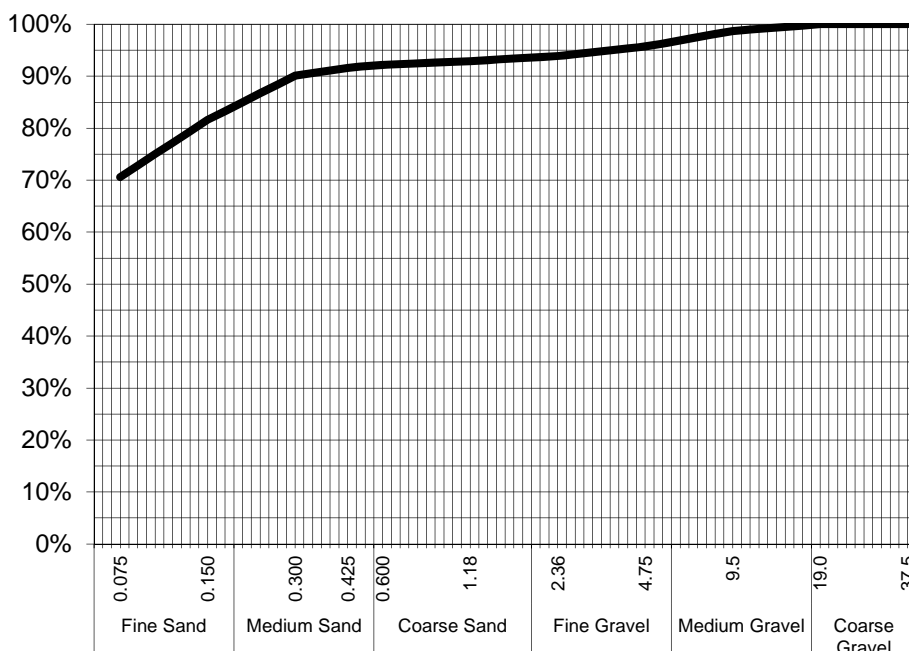
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-008 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_W\_SS01

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	99%
4.75	96%
2.36	94%
1.18	93%
0.600	92%
0.425	92%
0.300	90%
0.150	82%
0.075	71%

*Samples analysed as received.*

**Sample Comments:**

**Loss on Pretreatment:** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 20-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

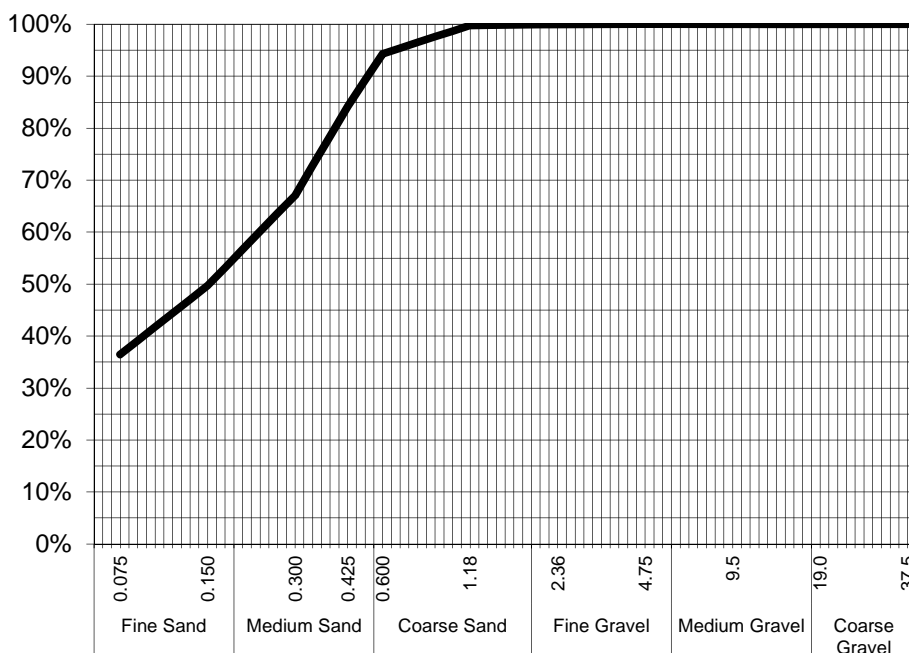
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-009 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_V\_SS03

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	94%
0.425	84%
0.300	67%
0.150	50%
0.075	37%

Samples analysed as received.

### Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**Analysed:** 20-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

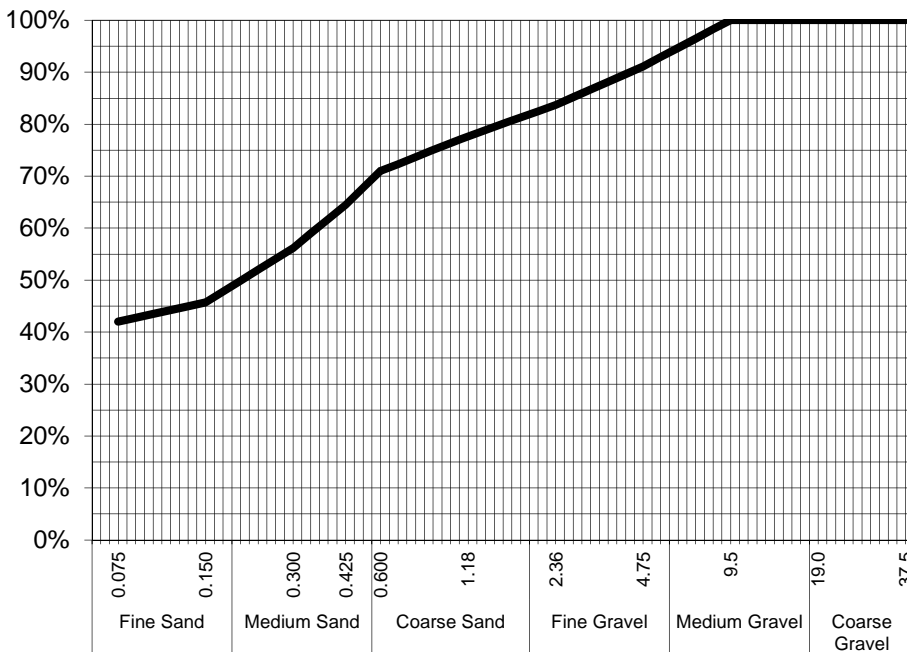
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-010 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** D03\_110314\_JD

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	91%
2.36	84%
1.18	78%
0.600	71%
0.425	65%
0.300	56%
0.150	46%
0.075	42%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

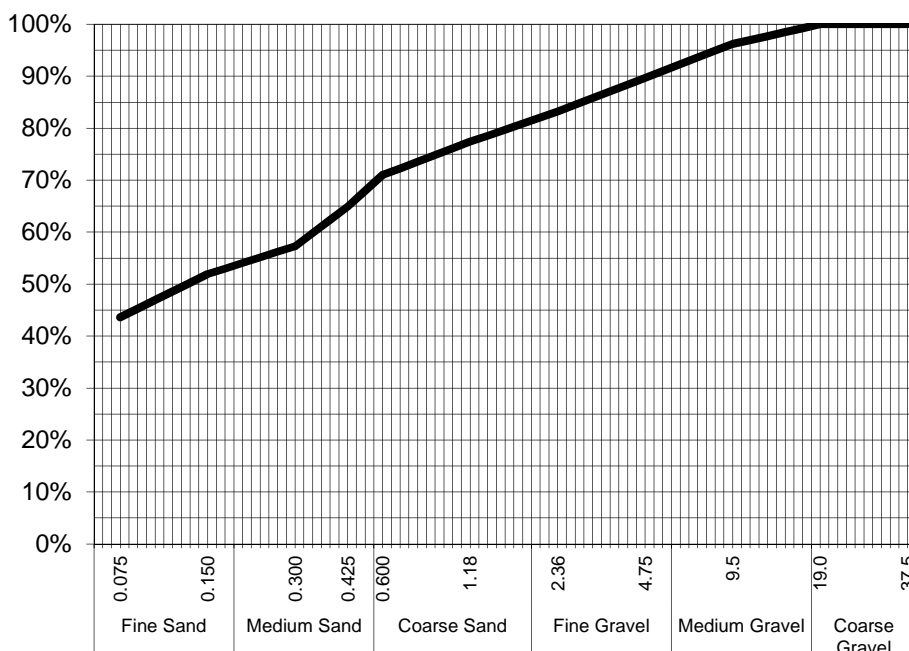
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-011 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** T01\_110314\_JD

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	96%
4.75	90%
2.36	83%
1.18	77%
0.600	71%
0.425	65%
0.300	57%
0.150	52%
0.075	44%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

# Certificate of Analysis

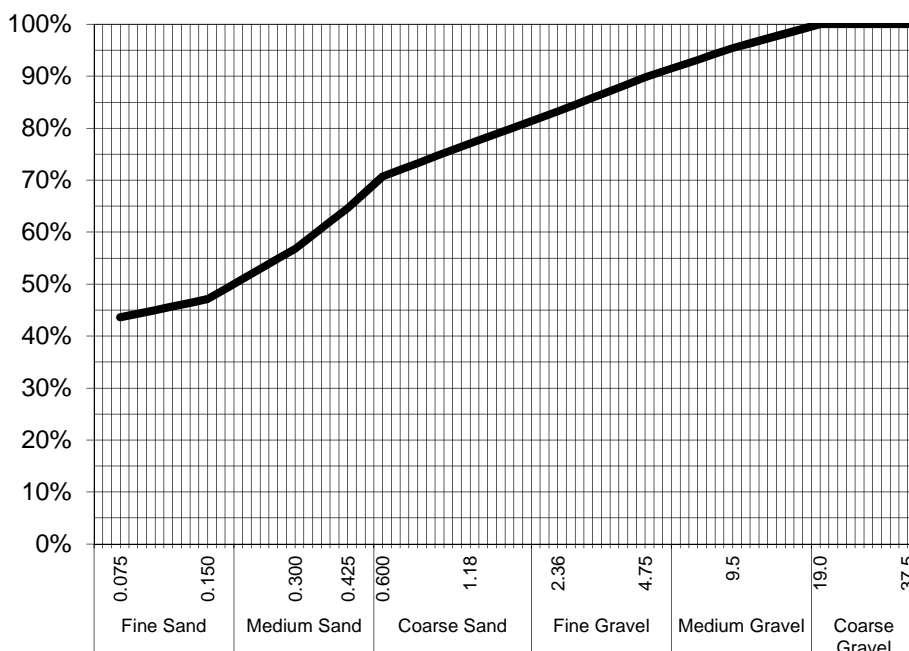
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-012 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_T\_SS02

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	95%
4.75	90%
2.36	83%
1.18	77%
0.600	71%
0.425	65%
0.300	57%
0.150	47%
0.075	44%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

# Certificate of Analysis

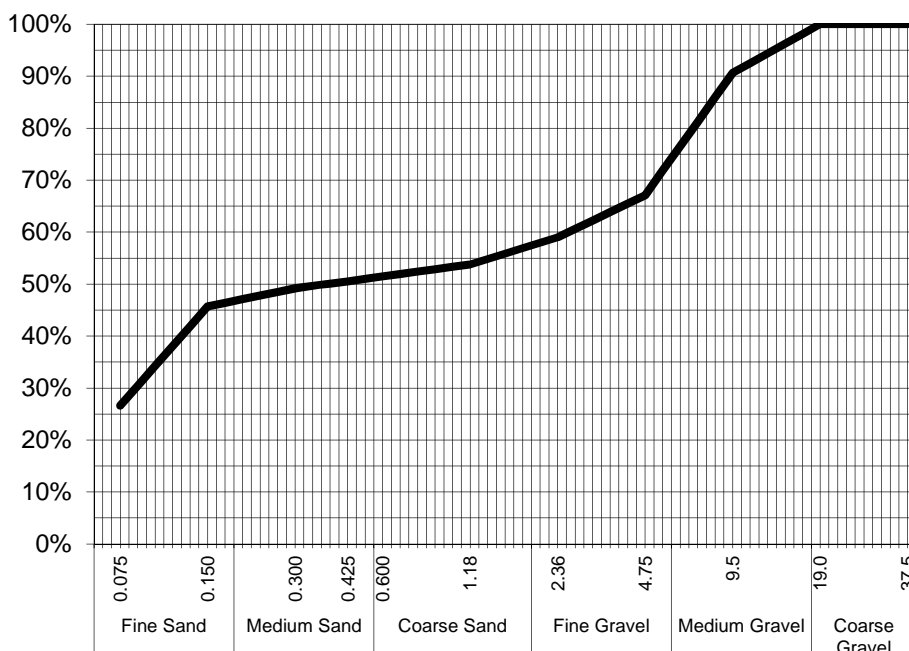
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 12-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405360-013 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_W\_SS02

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	91%
4.75	67%
2.36	59%
1.18	54%
0.600	52%
0.425	51%
0.300	49%
0.150	46%
0.075	27%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 20-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Gravel, sand and fines

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



# Certificate of Analysis

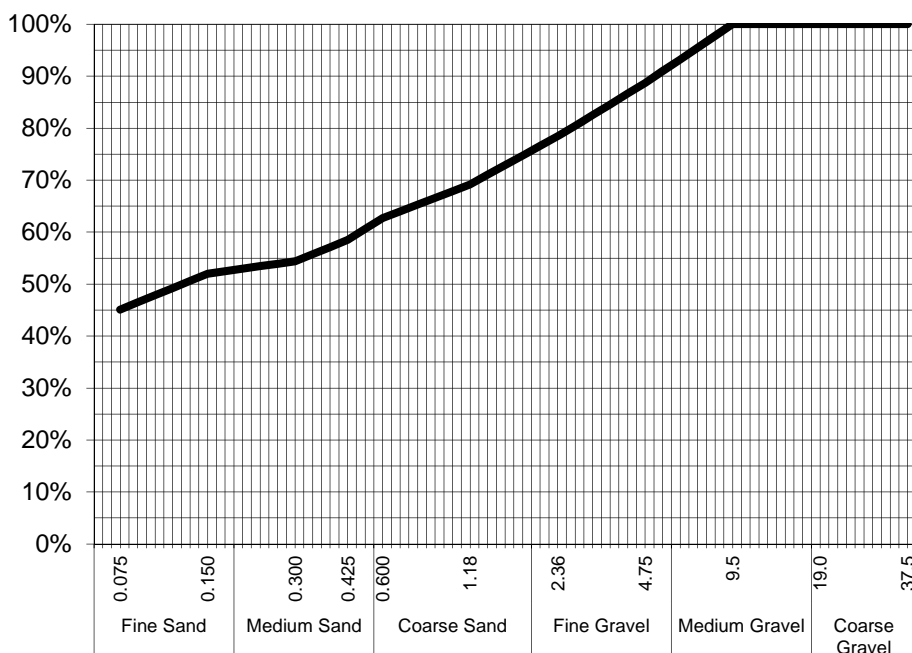
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405660-007 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VJ\_MW04\_1.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	89%
2.36	78%
1.18	69%
0.600	63%
0.425	59%
0.300	54%
0.150	52%
0.075	45%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

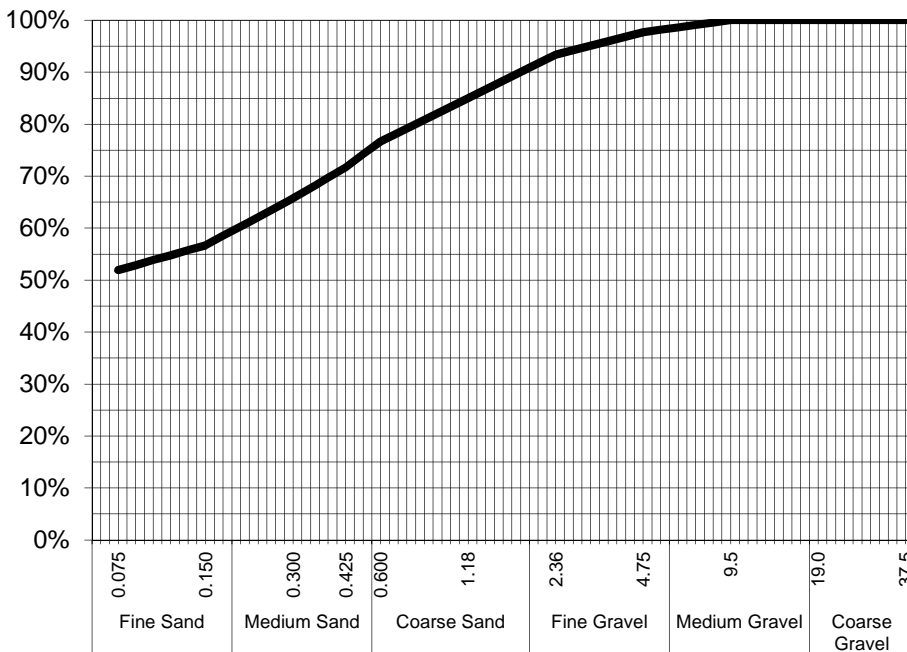
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405660-017 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VD\_MW04\_2.0

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	98%
2.36	93%
1.18	85%
0.600	77%
0.425	72%
0.300	66%
0.150	57%
0.075	52%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

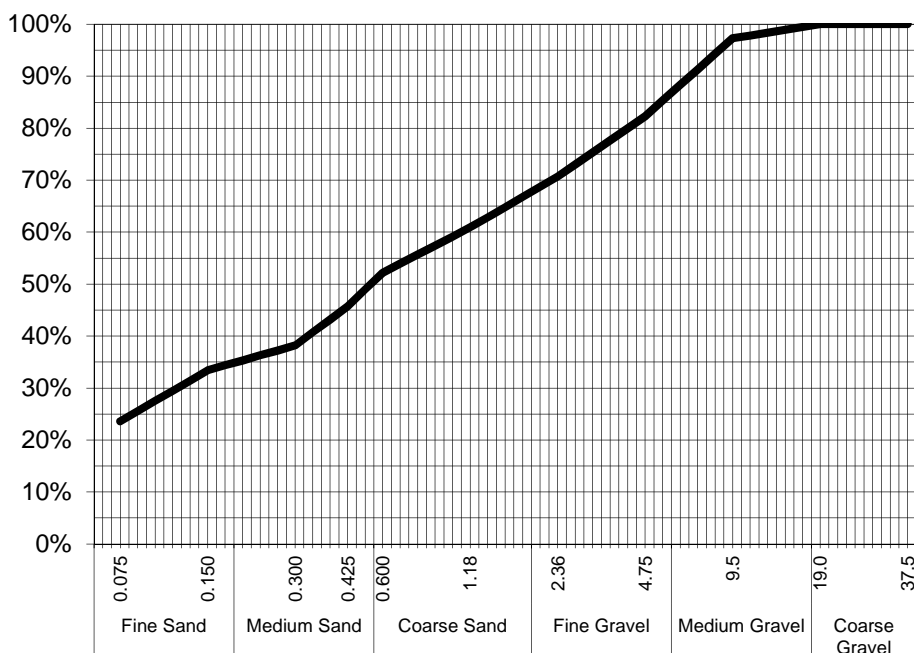
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405660-034 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VA\_MW01\_0.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	97%
4.75	82%
2.36	71%
1.18	61%
0.600	52%
0.425	46%
0.300	38%
0.150	33%
0.075	24%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Sand, gravel and fines

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405527</b>	Page	: 1 of 16
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: JD	No. of samples received	: 16
Site	: ----	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP132: Poor matrix spike recovery due to sample matrix interferences.**
- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VR_C_SS01_0.20	VR_C_SS01_0.50	VR_C_SS03_0.15	VR_C_SS03_0.40	VR_C_SS02_0.10
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
				ES1405527-001	ES1405527-002	ES1405527-003	ES1405527-004	ES1405527-005
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	57	25	43	45	19
+150µm	----	1	%	29	7	15	28	11
+300µm	----	1	%	16	2	9	7	7
+425µm	----	1	%	8	2	7	4	6
+600µm	----	1	%	5	1	6	4	5
+1180µm	----	1	%	4	<1	4	2	3
+2.36mm	----	1	%	3	<1	3	1	1
+4.75mm	----	1	%	1	<1	1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.0	7.3	8.1	7.5	7.4
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	34.1	40.7	33.7	47.3	59.7
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	43	75	57	55	81
Sand (>75 µm)	----	1	%	54	25	41	44	18
Gravel (>2mm)	----	1	%	3	<1	3	1	1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	5	2	10	3	26
Barium	7440-39-3	0.1	mg/kg	8.8	5.3	21.1	7.7	15.0
Thallium	7440-28-0	0.1	mg/kg	1.1	<0.1	0.5	<0.1	1.0
Arsenic	7440-38-2	0.1	mg/kg	6.6	6.3	8.0	6.1	10.5
Cobalt	7440-48-4	0.1	mg/kg	2.8	3.6	2.6	4.4	5.2
Beryllium	7440-41-7	0.1	mg/kg	0.3	0.4	0.4	0.4	0.6
Boron	7440-42-8	5	mg/kg	34	36	26	66	65
Manganese	7439-96-5	0.1	mg/kg	54.1	104	39.0	74.1	77.6
Cadmium	7440-43-9	0.1	mg/kg	0.9	<0.1	0.7	0.2	2.0
Molybdenum	7439-98-7	0.1	mg/kg	8.4	10.2	10.0	18.5	34.1
Chromium	7440-47-3	0.1	mg/kg	16.3	7.9	18.9	7.8	30.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS01_0.20	VR_C_SS01_0.50	VR_C_SS03_0.15	VR_C_SS03_0.40	VR_C_SS02_0.10
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-001	ES1405527-002	ES1405527-003	ES1405527-004	ES1405527-005
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	16.1	5.4	14.6	7.6	25.8
Vanadium	7440-62-2	1	mg/kg	34	26	58	32	93
Lead	7439-92-1	0.1	mg/kg	8.0	4.5	12.5	5.6	16.7
Nickel	7440-02-0	0.1	mg/kg	4.3	4.7	4.1	5.6	9.0
Zinc	7440-66-6	0.5	mg/kg	44.0	13.8	53.4	19.8	84.4
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	1.28	2.63	0.80	4.63	8.50
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<2
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.8
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	130
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	230
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	32
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	32
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	110	180



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS01_0.20	VR_C_SS01_0.50	VR_C_SS03_0.15	VR_C_SS03_0.40	VR_C_SS02_0.10
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-001	ES1405527-002	ES1405527-003	ES1405527-004	ES1405527-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<b>110</b>	<b>180</b>
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<b>20</b>	<10	<10	<10	<b>20</b>
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<b>10</b>	<10	<10	<10	<10
Benzo(a)pyrene	50-32-8	10	µg/kg	<b>10</b>	<10	<10	<10	<b>10</b>
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<b>10</b>	<10	<10	<10	<b>20</b>
Benzo(e)pyrene	192-97-2	10	µg/kg	<b>10</b>	<10	<10	<10	<b>10</b>
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	<b>10</b>
Chrysene	218-01-9	10	µg/kg	<b>20</b>	<10	<10	<10	<10
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	<b>20</b>	<10	<b>10</b>	<10	<b>30</b>
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VR_C_SS01_0.20	VR_C_SS01_0.50	VR_C_SS03_0.15	VR_C_SS03_0.40	VR_C_SS02_0.10
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
				ES1405527-001	ES1405527-002	ES1405527-003	ES1405527-004	ES1405527-005
Compound	CAS Number	LOR	Unit					
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	30	<10	10	10
Phenanthrene	85-01-8	10	µg/kg	30	<10	10	<10	<10
Pyrene	129-00-0	10	µg/kg	20	<10	20	<10	40
^ Sum of PAHs	----	10	µg/kg	150	30	40	10	150
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	10	<10	<10	<10	10
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	20	10	10	10	20
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	106	114	107	105	106
2-Chlorophenol-D4	93951-73-6	0.1	%	95.4	106	94.0	89.7	92.8
2,4,6-Tribromophenol	118-79-6	0.1	%	94.7	91.8	92.1	87.5	92.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.5	107	92.2	89.3	91.8
Anthracene-d10	1719-06-8	0.1	%	86.0	91.2	85.1	81.8	83.9
4-Terphenyl-d14	1718-51-0	0.1	%	86.9	95.8	85.8	82.8	82.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.0	87.6	118	92.1	103
Toluene-D8	2037-26-5	0.1	%	80.0	106	92.8	111	79.8
4-Bromofluorobenzene	460-00-4	0.1	%	83.1	92.7	100	97.9	82.8
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.4	72.4	75.8	75.8	78.7
Anthracene-d10	1719-06-8	0.1	%	82.4	80.7	84.9	87.4	88.0
4-Terphenyl-d14	1718-51-0	0.1	%	81.0	85.6	86.2	94.3	89.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS02_0.50	VR_M_SS02_0.25	VR_M_SS02_0.50	TRIP SPIKE	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405527-006	ES1405527-007	ES1405527-008	ES1405527-009	ES1405527-010
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	57	33	30	----	----
+150µm	----	1	%	32	10	15	----	----
+300µm	----	1	%	8	4	4	----	----
+425µm	----	1	%	6	2	3	----	----
+600µm	----	1	%	4	1	2	----	----
+1180µm	----	1	%	3	<1	1	----	----
+2.36mm	----	1	%	<1	<1	<1	----	----
+4.75mm	----	1	%	<1	<1	<1	----	----
+9.5mm	----	1	%	<1	<1	<1	----	----
+19.0mm	----	1	%	<1	<1	<1	----	----
+37.5mm	----	1	%	<1	<1	<1	----	----
+75.0mm	----	1	%	<1	<1	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	7.5	7.9	8.0	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	46.7	40.7	48.7	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	43	67	70	----	----
Sand (>75 µm)	----	1	%	56	32	30	----	----
Gravel (>2mm)	----	1	%	1	<1	<1	----	----
Cobbles (>6cm)	----	1	%	<1	<1	<1	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	4	8	3	----	----
Barium	7440-39-3	0.1	mg/kg	13.0	5.5	6.1	----	----
Thallium	7440-28-0	0.1	mg/kg	<0.1	0.3	<0.1	----	----
Arsenic	7440-38-2	0.1	mg/kg	5.9	14.0	10.6	----	----
Cobalt	7440-48-4	0.1	mg/kg	4.7	5.0	5.7	----	----
Beryllium	7440-41-7	0.1	mg/kg	0.5	0.8	0.8	----	----
Boron	7440-42-8	5	mg/kg	47	46	65	----	----
Manganese	7439-96-5	0.1	mg/kg	68.4	136	170	----	----
Cadmium	7440-43-9	0.1	mg/kg	0.1	0.4	0.1	----	----
Molybdenum	7439-98-7	0.1	mg/kg	17.8	21.1	23.3	----	----
Chromium	7440-47-3	0.1	mg/kg	8.7	21.6	12.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS02_0.50	VR_M_SS02_0.25	VR_M_SS02_0.50	TRIP SPIKE	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-006	ES1405527-007	ES1405527-008	ES1405527-009	ES1405527-010
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	6.9	8.7	8.5	----	----
Vanadium	7440-62-2	1	mg/kg	32	57	36	----	----
Lead	7439-92-1	0.1	mg/kg	5.7	7.6	6.1	----	----
Nickel	7440-02-0	0.1	mg/kg	5.8	6.4	8.4	----	----
Zinc	7440-66-6	0.5	mg/kg	20.4	32.3	25.4	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	4.88	1.32	2.57	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS02_0.50	VR_M_SS02_0.25	VR_M_SS02_0.50	TRIP SPIKE	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-006	ES1405527-007	ES1405527-008	ES1405527-009	ES1405527-010
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	0.5	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	14.6	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	1.6	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	7.6	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	3.2	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	10.8	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	27.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	----	----
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	----	----
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	----	----
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	----	----
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	----	----
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	----	----
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	----	----
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	----	----
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	----	----
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	----	----
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	----	----
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	----	----
Coronene	191-07-1	10	µg/kg	<10	<10	<10	----	----
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	----	----
Fluoranthene	206-44-0	10	µg/kg	<10	<10	<10	----	----
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS02_0.50	VR_M_SS02_0.25	VR_M_SS02_0.50	TRIP SPIKE	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-006	ES1405527-007	ES1405527-008	ES1405527-009	ES1405527-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	----	----
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	----	----
Perylene	198-55-0	10	µg/kg	10	<10	<10	----	----
Phenanthrene	85-01-8	10	µg/kg	<10	<10	<10	----	----
Pyrene	129-00-0	10	µg/kg	<10	10	<10	----	----
^ Sum of PAHs	----	10	µg/kg	10	10	<10	----	----
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	107	109	112	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	92.8	95.0	98.5	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	88.0	86.3	84.5	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	95.5	95.4	99.8	----	----
Anthracene-d10	1719-06-8	0.1	%	81.6	85.2	87.5	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	89.1	86.8	89.6	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	114	119	107	109
Toluene-D8	2037-26-5	0.1	%	109	117	116	98.1	84.1
4-Bromofluorobenzene	460-00-4	0.1	%	89.4	97.4	99.4	105	99.3
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.1	66.6	81.3	----	----
Anthracene-d10	1719-06-8	0.1	%	94.6	74.3	96.5	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	95.8	76.8	99.6	----	----



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

<b>TSC</b>	----	----	----	----
------------	------	------	------	------

Client sampling date / time

13-MAR-2014 15:00	----	----	----	----
-------------------	------	------	------	------

<i>Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<b>ES1405527-016</b>	----	----	----	----
-----------------	-------------------	------------	-------------	----------------------	------	------	------	------

### EP080: BTEXN

<b>Benzene</b>	71-43-2	0.2	mg/kg	<b>0.5</b>	----	----	----	----
<b>Toluene</b>	108-88-3	0.5	mg/kg	<b>15.1</b>	----	----	----	----
<b>Ethylbenzene</b>	100-41-4	0.5	mg/kg	<b>1.7</b>	----	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	0.5	mg/kg	<b>8.2</b>	----	----	----	----
<b>ortho-Xylene</b>	95-47-6	0.5	mg/kg	<b>3.5</b>	----	----	----	----
<b>Total Xylenes</b>	1330-20-7	0.5	mg/kg	<b>11.7</b>	----	----	----	----
<b>Sum of BTEX</b>	----	0.2	mg/kg	<b>29.0</b>	----	----	----	----
<b>Naphthalene</b>	91-20-3	1	mg/kg	<b>&lt;1</b>	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>114</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>93.3</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>99.3</b>	----	----	----	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_C_SW01	VR_C_SW02	VR_C_SW03	VR_M_SW02	R01_120314
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-011	ES1405527-012	ES1405527-013	ES1405527-014	ES1405527-015
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	----	<0.001
Thallium	7440-28-0	0.001	mg/L	----	----	----	----	<0.001
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	----
Arsenic	7440-38-2	0.5	µg/L	2.2	2.2	2.1	3.1	----
Barium	7440-39-3	1	µg/L	27	27	30	17	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Boron	7440-42-8	100	µg/L	3310	3300	3220	3730	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	----
Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	1.8	2.3	----
Cobalt	7440-48-4	0.2	µg/L	0.4	0.4	0.4	0.3	----
Copper	7440-50-8	1	µg/L	2	<1	<1	1	----
Lead	7439-92-1	0.2	µg/L	0.3	0.4	0.3	0.7	----
Manganese	7439-96-5	0.5	µg/L	49.1	47.2	65.5	27.6	----
Molybdenum	7439-98-7	0.1	µg/L	11.9	11.0	11.1	14.4	----
Nickel	7440-02-0	0.5	µg/L	1.0	1.1	1.3	2.0	----
Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	<0.1	0.1	----
Vanadium	7440-62-2	0.5	µg/L	5.1	5.7	4.2	8.7	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW01	VR_C_SW02	VR_C_SW03	VR_M_SW02	R01_120314
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
				ES1405527-011	ES1405527-012	ES1405527-013	ES1405527-014	ES1405527-015
Compound	CAS Number	LOR	Unit					
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	5	µg/L	11	19	17	48	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	----	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	----	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	----	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	----	----	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	----	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	----	----	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	----	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	----	----	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	----	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	----	----	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	----	----	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	----	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	----	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	----	----	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	----	----	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW01	VR_C_SW02	VR_C_SW03	VR_M_SW02	R01_120314
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
				ES1405527-011	ES1405527-012	ES1405527-013	ES1405527-014	ES1405527-015
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_C_SW01	VR_C_SW02	VR_C_SW03	VR_M_SW02	R01_120314
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405527-011	ES1405527-012	ES1405527-013	ES1405527-014	ES1405527-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	47.4	51.7	50.8	51.3	36.3
2-Chlorophenol-D4	93951-73-6	0.1	%	83.0	88.4	86.7	83.3	68.0
2,4,6-Tribromophenol	118-79-6	0.1	%	110	110	116	112	53.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	79.2	76.4	78.7	79.1	74.8
Anthracene-d10	1719-06-8	0.1	%	74.8	74.6	75.4	74.1	88.5
4-Terphenyl-d14	1718-51-0	0.1	%	73.1	72.0	71.8	70.0	85.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	73.4	114	117	92.6
Toluene-D8	2037-26-5	0.1	%	113	135	125	99.3	94.3
4-Bromofluorobenzene	460-00-4	0.1	%	127	84.5	117	85.8	80.8
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.9	88.9	89.3	93.0	----
Anthracene-d10	1719-06-8	0.1	%	87.6	98.9	101	104	----
4-Terphenyl-d14	1718-51-0	0.1	%	80.5	90.9	93.1	97.8	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	26.9	131
Anthracene-d10	1719-06-8	35	139
4-Terphenyl-d14	1718-51-0	29.7	164

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405527</b>	Page	: 1 of 22
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: JD	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Brisbane Acid Sulphate Soils
		Sydney Organics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3346823)</b>									
ES1405516-094	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
ES1405687-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3350008)</b>									
ES1405527-003	VR_C_SS03_0.15	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	33.7	33.1	1.8	0% - 20%
ES1405804-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.5	14.6	7.3	0% - 50%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3348830)</b>									
ES1405360-001	Anonymous	EG020X-T: Barium	7440-39-3	0.1	mg/kg	15.6	14.0	10.8	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	8.0	7.3	8.2	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	396	392	1.2	0% - 20%
		EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	1.6	1.4	17.2	0% - 50%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	44	42	4.1	0% - 20%
ES1405360-010	Anonymous	EG020X-T: Barium	7440-39-3	0.1	mg/kg	7.7	6.5	16.6	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	7.7	9.4	19.6	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	284	262	8.0	0% - 20%
		EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	1.0	1.1	17.3	0% - 50%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	30	26	12.3	0% - 20%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3348831)</b>									
ES1405527-008	VR_M_SS02_0.50	EG020Y-T: Thallium	7440-28-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020Y-T: Selenium	7782-49-2	1	mg/kg	3	3	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3348834)</b>									
ES1405527-008	VR_M_SS02_0.50	EG020X-T: Barium	7440-39-3	0.1	mg/kg	6.1	6.7	8.4	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	5.7	5.5	2.6	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	170	171	0.7	0% - 20%
		EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	23.3	23.2	0.6	0% - 20%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	36	36	0.0	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3348829)</b>									
ES1405360-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.0	No Limit
ES1405360-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3348833)</b>									
ES1405527-008	VR_M_SS02_0.50	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3346754)</b>									
ES1405524-012	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.12	0.11	0.0	No Limit
ES1405527-008	VR_M_SS02_0.50	EP003: Total Organic Carbon	----	0.02	%	2.57	2.64	2.7	0% - 20%
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342836)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342836) - continued</b>									
ES1405527-001	VR_C_SS01_0.20	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405541-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405525-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342835)</b>									
ES1405527-001	VR_C_SS01_0.20	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405541-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347155)</b>									
ES1405896-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405525-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342835)</b>									
ES1405527-001	VR_C_SS01_0.20	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405541-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347155)</b>									
ES1405896-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405525-013	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3347155)</b>									
ES1405896-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342814)</b>									
ES1405527-001	VR_C_SS01_0.20	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	20	20	0.0	No Limit
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Anthracene	120-12-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	10	10	0.0	No Limit
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	10	10	0.0	No Limit



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342814) - continued</b>									
ES1405527-001	VR_C_SS01_0.20	EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	10	10	0.0	No Limit
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	10	<10	0.0	No Limit
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Chrysene	218-01-9	10	µg/kg	20	20	0.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	20	20	0.0	No Limit
		EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Naphthalene	91-20-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Phenanthrene	85-01-8	10	µg/kg	30	30	0.0	No Limit
		EP132: Pyrene	129-00-0	10	µg/kg	20	20	0.0	No Limit
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit		
<b>Sub-Matrix: <b>WATER</b></b>									
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3349447)</b>									
ES1405156-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.009	0.010	13.4	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.031	0.032	5.3	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.014	89.6	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ME1400386-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.029	0.028	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.030	0.030	0.0	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3349447) - continued</b>									
ME1400386-001	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	7.40	7.49	1.2	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.098	0.101	2.8	0% - 20%
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.016	31.7	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3343120)</b>									
EM1402095-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM1402097-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347392)</b>									
EM1402153-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405660-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3352130)</b>									
EM1402153-001	Anonymous	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	26.2	25.5	2.6	0% - 20%
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	4.5	4.6	0.0	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	238	236	0.7	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	1.0	1.0	0.0	No Limit
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	1.4	2.3	49.3	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	22	22	0.0	0% - 20%
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3530	3570	1.1	0% - 20%
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.0	No Limit		
ES1405527-011	VR_C_SW01	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	11.9	11.5	3.2	0% - 20%
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	0.4	0.4	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	0.3	0.3	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	2.2	2.2	0.0	No Limit
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit		





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3352130) - continued</b>									
ES1405527-011	VR_C_SW01	EG093A-T: Manganese	7439-96-5	0.5	µg/L	49.1	48.3	1.5	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	1.0	1.0	0.0	No Limit
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	5.1	5.3	2.5	0% - 50%
		EG093A-T: Barium	7440-39-3	1	µg/L	27	27	0.0	0% - 20%
		EG093A-T: Copper	7440-50-8	1	µg/L	2	<1	76.1	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3310	3240	2.1	0% - 20%
		EG093A-T: Zinc	7440-66-6	5	µg/L	11	11	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3352131)</b>									
ES1405527-011	VR_C_SW01	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344792)</b>									
ES1405393-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405528-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344792)</b>									
ES1405393-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405528-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3344792)</b>									
ES1405393-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405528-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348828)</b>									
EG020T: Arsenic	7440-38-2	0.1	mg/kg	<0.1	21.7 mg/kg	116	70	130	
EG020T: Beryllium	7440-41-7	0.1	mg/kg	<0.1	5.63 mg/kg	118	70	130	
EG020T: Boron	7440-42-8	0.1	mg/kg	<0.5	----	----	----	----	
EG020T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	4.64 mg/kg	112	70	130	
EG020T: Chromium	7440-47-3	0.1	mg/kg	<0.1	43.9 mg/kg	103	70	130	
EG020T: Copper	7440-50-8	0.1	mg/kg	<0.1	32.0 mg/kg	117	70	130	
EG020T: Lead	7439-92-1	0.1	mg/kg	<0.1	40.0 mg/kg	108	70	130	
EG020T: Nickel	7440-02-0	0.1	mg/kg	<0.1	55.0 mg/kg	115	70	130	
EG020T: Zinc	7440-66-6	0.5	mg/kg	<0.5	60.8 mg/kg	114	70	130	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348830)</b>									
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	143 mg/kg	107	70	134	
EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	<0.1	16.0 mg/kg	121	77	131	
EG020X-T: Manganese	7439-96-5	0.1	mg/kg	<0.1	130 mg/kg	124	74	134	
EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	<0.1	7.9 mg/kg	111	71	129	
EG020X-T: Vanadium	7440-62-2	1	mg/kg	<1	29.6 mg/kg	118	87	129	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348831)</b>									
EG020Y-T: Selenium	7782-49-2	1	mg/kg	<1	5.37 mg/kg	75.0	73	131	
EG020Y-T: Thallium	7440-28-0	0.1	mg/kg	<0.1	5.96 mg/kg	89.8	80	138	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348832)</b>									
EG020T: Arsenic	7440-38-2	0.1	mg/kg	<0.1	21.7 mg/kg	120	70	130	
EG020T: Beryllium	7440-41-7	0.1	mg/kg	<0.1	5.63 mg/kg	121	70	130	
EG020T: Boron	7440-42-8	0.1	mg/kg	<0.5	----	----	----	----	
EG020T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	4.64 mg/kg	108	70	130	
EG020T: Chromium	7440-47-3	0.1	mg/kg	<0.1	43.9 mg/kg	120	70	130	
EG020T: Copper	7440-50-8	0.1	mg/kg	<0.1	32.0 mg/kg	122	70	130	
EG020T: Lead	7439-92-1	0.1	mg/kg	<0.1	40.0 mg/kg	107	70	130	
EG020T: Nickel	7440-02-0	0.1	mg/kg	<0.1	55.0 mg/kg	124	70	130	
EG020T: Zinc	7440-66-6	0.5	mg/kg	<0.5	60.8 mg/kg	122	70	130	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348834)</b>									
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	143 mg/kg	106	70	134	
EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	<0.1	16.0 mg/kg	126	77	131	
EG020X-T: Manganese	7439-96-5	0.1	mg/kg	<0.1	130 mg/kg	126	74	134	
EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	<0.1	7.9 mg/kg	109	71	129	
EG020X-T: Vanadium	7440-62-2	1	mg/kg	<1	29.6 mg/kg	119	87	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.3	66	112
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348833)</b>								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	91.6	66	112
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3346754)</b>								
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	96.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342836)</b>								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	98.4	74	116
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	105	72	116
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	109	69	123
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.7	60.3	117
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	102	69	117
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	98.8	68	112
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	99.4	73	117
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	94.6	76.4	114
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	86.4	57	111
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	89.4	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.4	10	57
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	119	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342835)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	92.2	64	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347155)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	70.2	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	126	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342835)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	101	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	112	63	131
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347155)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	68.8	68.4	128
<b>EP080: BTEXN (QCLot: 3342778)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.6	62	116



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3342778) - continued</b>									
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	82.5	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	78.6	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.7	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.9	62	138	
<b>EP080: BTEXN (QCLot: 3347155)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	76.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	81.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.3	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	78.3	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.8	62	138	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342814)</b>									
EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	100 µg/kg	83.4	36	120	
EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	100 µg/kg	85.0	51	135	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	100 µg/kg	87.7	14.9	157	
EP132: Acenaphthene	83-32-9	10	µg/kg	<10	100 µg/kg	92.8	57	125	
EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	100 µg/kg	81.9	48	132	
EP132: Anthracene	120-12-7	10	µg/kg	<10	100 µg/kg	90.6	50	114	
EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	100 µg/kg	93.9	66	124	
EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	100 µg/kg	104	43	125	
EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	100 µg/kg	99.9	64	130	
EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	100 µg/kg	104	55	141	
EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	100 µg/kg	93.4	46	134	
EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	100 µg/kg	93.2	65	129	
EP132: Chrysene	218-01-9	10	µg/kg	<10	100 µg/kg	100	69	129	
EP132: Coronene	191-07-1	10	µg/kg	<10	100 µg/kg	89.2	26.9	149	
EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	100 µg/kg	87.7	50	134	
EP132: Fluoranthene	206-44-0	10	µg/kg	<10	100 µg/kg	81.2	68	130	
EP132: Fluorene	86-73-7	10	µg/kg	<10	100 µg/kg	86.2	57	131	
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	10	µg/kg	<10	100 µg/kg	89.4	46	138	
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	100 µg/kg	99.1	50	138	
EP132: Naphthalene	91-20-3	10	µg/kg	<10	100 µg/kg	59.8	50	132	
EP132: Perylene	198-55-0	10	µg/kg	<10	100 µg/kg	92.5	48	132	
EP132: Phenanthrene	85-01-8	10	µg/kg	<10	100 µg/kg	96.3	67	127	
EP132: Pyrene	129-00-0	10	µg/kg	<10	100 µg/kg	81.7	66	130	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.0	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	103	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.0	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	97.7	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.5	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.1	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.3	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	107	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.8	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	92.2	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	107	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.1	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.5	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	106	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	112	77	115	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.9	77	115	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3352130)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	105	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	106	82	128	
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	105	79	123	
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	112	80	118	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	102	86	126	
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	107	90	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	116	84	128	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	105	87	125	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	103	86	126	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	108	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	103	85	125	
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	104	81	127	
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	103	84	126	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	112	82	128	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3352131)</b>									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	99.8	75	133	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342261)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	55.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	102	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	85.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	98.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	92.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	91.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	96.3	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	95.6	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	92.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	83.5	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	84.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	56.9	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342325)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	35.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	67.8	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.7	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	55.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	63.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	66.8	59.3	122	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342325) - continued</b>									
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.0	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	64.6	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	65.0	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	62.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.5	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342325)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	63.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	67.2	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	# 62.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	66.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	73.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	71.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	72.5	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	71.1	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	76.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	77.9	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	86.8	59.9	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342325) - continued</b>									
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	66.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342260)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	109	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	79.6	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342323)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	94.7	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	89.0	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344792)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	112	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342260)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	78.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342323)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	86.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.3	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344792)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	113	75	127	
<b>EP080: BTEXN (QCLot: 3344792)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	122	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	123	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	118	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	117	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342107)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	85.5	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	84.9	59	123	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342107) - continued</b>									
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	112	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	91.9	64	122	
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	89.6	62	124	
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	96.2	66	124	
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	96.6	64	130	
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	94.8	64	126	
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	99.9	62	126	
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	98.9	62	126	
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	97.1	56	126	
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	93.6	63	127	
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	99.3	64	128	
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	102	35	133	
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	94.2	58	128	
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	90.5	65	127	
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	89.4	64	124	
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	95.2	57	127	
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	118	53.6	131	
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	67.0	60	124	
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	96.7	64	124	
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	97.4	65	125	
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	89.2	66	128	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348831)</b>								
ES1405527-008	VR_M_SS02_0.50	EG020Y-T: Selenium	7782-49-2	50 mg/kg	102	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>								
ES1405360-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348833)</b>								
ES1405527-008	VR_M_SS02_0.50	EG035T: Mercury	7439-97-6	5 mg/kg	99.1	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342836)</b>								
ES1405527-001	VR_C_SS01_0.20	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342836) - continued</b>							
ES1405527-001	VR_C_SS01_0.20	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	99.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.6	20	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342835)</b>							
ES1405527-001	VR_C_SS01_0.20	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	75.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347155)</b>							
ES1405896-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	81.9	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342835)</b>							
ES1405527-001	VR_C_SS01_0.20	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.8	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.0	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347155)</b>							
ES1405896-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.0	70	130
<b>EP080: BTEXN (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	74.9	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	70	130
<b>EP080: BTEXN (QCLot: 3347155)</b>							
ES1405896-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	75.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	76.1	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	80.8	70	130
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342814)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342814) - continued</b>							
ES1405527-001	VR_C_SS01_0.20	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	66.0	15	119
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	94.7	49	129
		EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	114	14.9	157
		EP132: Acenaphthene	83-32-9	100 µg/kg	103	57	125
		EP132: Acenaphthylene	208-96-8	100 µg/kg	98.9	37	123
		EP132: Anthracene	120-12-7	100 µg/kg	102	50	114
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	107	66	124
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	110	43	125
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	90.1	64	130
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	110	43	145
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	# 38.5	46	134
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	92.9	65	129
		EP132: Chrysene	218-01-9	100 µg/kg	106	69	129
		EP132: Coronene	191-07-1	100 µg/kg	# 22.4	26.9	149
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	58.6	50	134
		EP132: Fluoranthene	206-44-0	100 µg/kg	105	68	130
		EP132: Fluorene	86-73-7	100 µg/kg	102	57	131
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	49.1	46	138
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	97.6	50	138
		EP132: Naphthalene	91-20-3	100 µg/kg	66.1	48	126
EP132: Perylene	198-55-0	100 µg/kg	99.1	37	125		
EP132: Phenanthrene	85-01-8	100 µg/kg	108	67	127		
EP132: Pyrene	129-00-0	100 µg/kg	104	66	130		

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>							
ES1405525-015	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	101	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.1	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	97.5	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	98.1	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	118	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.3	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	94.8	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.9	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>								
EM1402095-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	70.7	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>								
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	70	130	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3352130)</b>								
EM1402153-002	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	113	70	130	
		EG093A-T: Barium	7440-39-3	50 µg/L	105	70	130	
		EG093A-T: Beryllium	7440-41-7	50 µg/L	102	70	130	
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	113	70	130	
		EG093A-T: Chromium	7440-47-3	50 µg/L	105	70	130	
		EG093A-T: Cobalt	7440-48-4	50 µg/L	105	70	130	
		EG093A-T: Copper	7440-50-8	50 µg/L	122	70	130	
		EG093A-T: Lead	7439-92-1	50 µg/L	103	70	130	
		EG093A-T: Manganese	7439-96-5	50 µg/L	106	70	130	
		EG093A-T: Nickel	7440-02-0	50 µg/L	112	70	130	
		EG093A-T: Vanadium	7440-62-2	50 µg/L	105	70	130	
		EG093A-T: Zinc	7440-66-6	50 µg/L	110	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344792)</b>								
ES1405393-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	89.9	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344792)</b>								
ES1405393-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.8	70	130	
<b>EP080: BTEXN (QCLot: 3344792)</b>								
ES1405393-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	92.7	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.3	70	130	
		EP080: Naphthalene	91-20-3	25 µg/L	83.9	70	130	

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike		Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>											





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778) - continued</b>											
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.9	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	----	70	130	----	----	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342814)</b>											
ES1405527-001	VR_C_SS01_0.20	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	66.0	----	15	119	----	----	
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	94.7	----	49	129	----	----	
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	114	----	14.9	157	----	----	
		EP132: Acenaphthene	83-32-9	100 µg/kg	103	----	57	125	----	----	
		EP132: Acenaphthylene	208-96-8	100 µg/kg	98.9	----	37	123	----	----	
		EP132: Anthracene	120-12-7	100 µg/kg	102	----	50	114	----	----	
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	107	----	66	124	----	----	
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	110	----	43	125	----	----	
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	90.1	----	64	130	----	----	
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	110	----	43	145	----	----	
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	# 38.5	----	46	134	----	----	
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	92.9	----	65	129	----	----	
		EP132: Chrysene	218-01-9	100 µg/kg	106	----	69	129	----	----	
		EP132: Coronene	191-07-1	100 µg/kg	# 22.4	----	26.9	149	----	----	
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	58.6	----	50	134	----	----	
		EP132: Fluoranthene	206-44-0	100 µg/kg	105	----	68	130	----	----	
		EP132: Fluorene	86-73-7	100 µg/kg	102	----	57	131	----	----	
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	100 µg/kg	49.1	----	46	138	----	----	
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	97.6	----	50	138	----	----	
		EP132: Naphthalene	91-20-3	100 µg/kg	66.1	----	48	126	----	----	
EP132: Perylene	198-55-0	100 µg/kg	99.1	----	37	125	----	----			
EP132: Phenanthrene	85-01-8	100 µg/kg	108	----	67	127	----	----			
EP132: Pyrene	129-00-0	100 µg/kg	104	----	66	130	----	----			
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342835)</b>											
ES1405527-001	VR_C_SS01_0.20	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	75.9	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	----	52	132	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342835)</b>											
ES1405527-001	VR_C_SS01_0.20	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.0	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342836)</b>											
ES1405527-001	VR_C_SS01_0.20	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.4	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	99.2	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.6	----	20	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347155)</b>											
ES1405896-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	81.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347155)</b>											
ES1405896-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.0	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3347155)</b>											
ES1405896-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.9	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	80.8	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348829)</b>											
ES1405360-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348831)</b>											
ES1405527-008	VR_M_SS02_0.50	EG020Y-T: Selenium	7782-49-2	50 mg/kg	102	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3348833)</b>											
ES1405527-008	VR_M_SS02_0.50	EG035T: Mercury	7439-97-6	5 mg/kg	99.1	----	70	130	----	----	

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>										
EM1402095-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	70.7	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344792)</b>										
ES1405393-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	89.9	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344792)</b>										
ES1405393-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.8	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080: BTEXN (QCLot: 3344792)</b>											
ES1405393-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	92.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.5	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.3	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	83.9	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>											
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>											
ES1405525-015	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.1	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	97.5	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	98.1	----	70	130	----	----	
		EG020A-T: Manganese	7439-96-5	1 mg/L	118	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.3	----	70	130	----	----	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	94.8	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.9	----	70	130	----	----	
		<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3352130)</b>									
EM1402153-002	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	113	----	70	130	----	----	
		EG093A-T: Barium	7440-39-3	50 µg/L	105	----	70	130	----	----	
		EG093A-T: Beryllium	7440-41-7	50 µg/L	102	----	70	130	----	----	
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	113	----	70	130	----	----	
		EG093A-T: Chromium	7440-47-3	50 µg/L	105	----	70	130	----	----	
		EG093A-T: Cobalt	7440-48-4	50 µg/L	105	----	70	130	----	----	
		EG093A-T: Copper	7440-50-8	50 µg/L	122	----	70	130	----	----	
		EG093A-T: Lead	7439-92-1	50 µg/L	103	----	70	130	----	----	
		EG093A-T: Manganese	7439-96-5	50 µg/L	106	----	70	130	----	----	
		EG093A-T: Nickel	7440-02-0	50 µg/L	112	----	70	130	----	----	
		EG093A-T: Vanadium	7440-62-2	50 µg/L	105	----	70	130	----	----	
		EG093A-T: Zinc	7440-66-6	50 µg/L	110	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405527</b>	Page	: 1 of 12
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: JD	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b>								
VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25	VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25	VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	---	---	---	20-MAR-2014	26-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b>								
VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25	VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	---	08-SEP-2014	---	24-MAR-2014	17-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b>								
VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25	VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	---	08-SEP-2014	---	24-MAR-2014	17-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Soil Glass Jar - Unpreserved (EG020T)</b>								
VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25	VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	08-SEP-2014	✓	20-MAR-2014	08-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Soil Glass Jar - Unpreserved (EG020X-T)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	08-SEP-2014	✓	20-MAR-2014	08-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Soil Glass Jar - Unpreserved (EG020Y-T)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	08-SEP-2014	✓	20-MAR-2014	08-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	09-APR-2014	✓	21-MAR-2014	09-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	19-MAR-2014	09-APR-2014	✓	21-MAR-2014	09-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	26-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25, VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	20-MAR-2014	26-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10 VR_C_SS01_0.50, VR_C_SS03_0.40,	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP SPIKE, TSC TRIP BLANK,	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10 VR_C_SS01_0.50, VR_C_SS03_0.40,	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP BLANK	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP132)</b> VR_C_SS01_0.20, VR_C_SS03_0.15, VR_C_SS02_0.10, VR_M_SS02_0.25 VR_C_SS01_0.50, VR_C_SS03_0.40, VR_C_SS02_0.50, VR_M_SS02_0.50	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	20-MAR-2014	27-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_120314	12-MAR-2014	20-MAR-2014	08-SEP-2014	✓	21-MAR-2014	08-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T)</b> VR_C_SW01, VR_C_SW03, VR_M_SW02, VR_M_SW02	12-MAR-2014	----	----	----	19-MAR-2014	09-APR-2014	✓
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_120314	12-MAR-2014	----	----	----	18-MAR-2014	09-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
<b>Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02	12-MAR-2014	21-MAR-2014	08-SEP-2014	✓	21-MAR-2014	08-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
<b>Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02	12-MAR-2014	21-MAR-2014	08-SEP-2014	✓	21-MAR-2014	08-SEP-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	20-MAR-2014	29-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_120314	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	20-MAR-2014	29-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_120314	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_120314	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02, R01_120314	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02, R01_120314	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP132)</b> VR_C_SW01, VR_C_SW02, VR_C_SW03, VR_M_SW02	12-MAR-2014	18-MAR-2014	19-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(when) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	23	13.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	3	23	13.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	30	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Total Metals by ICP-MS	EG020T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Total Metals by ICP-MS	EG020T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	2	15	13.3	9.5	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	26	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	15	6.7	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	25	8.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	26	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	15	6.7	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	25	8.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	15	6.7	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Total Metals by ICP-MS	EG020T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020) (ICPMS) Metals in solids are determined following an appropriate acid digestion. The ICPMS technique ionizes selected elements. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass / charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite Y	EG020Y-T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	SOIL	USEPA 8270 GCMS Capillary column, SIM mode.



Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatle Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.





Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids/ Acetylation	ORG17A-AC	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405527-001	VR_C_SS01_0.20	<b>Benzo(g,h,i)perylene</b>	191-24-2	38.5 %	46-134%	<b>Recovery less than lower data quality objective</b>
EP132B: Polynuclear Aromatic Hydrocarbons	ES1405527-001	VR_C_SS01_0.20	<b>Coronene</b>	191-07-1	22.4 %	26.9-149%	<b>Recovery less than lower data quality objective</b>

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3992522-018	----	<b>Acenaphthene</b>	83-32-9	62.2 %	62.2-113%	<b>Recovery less than lower control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1405527-013	VR_C_SW03	<b>Phenol-d6</b>	13127-88-3	50.8 %	10.0-44 %	<b>Recovery greater than upper data quality objective</b>
EP075(SIM)S: Phenolic Compound Surrogates	ES1405527-012	VR_C_SW02	<b>Phenol-d6</b>	13127-88-3	51.7 %	10.0-44 %	<b>Recovery greater than upper data quality objective</b>
EP075(SIM)S: Phenolic Compound Surrogates	ES1405527-014	VR_M_SW02	<b>Phenol-d6</b>	13127-88-3	51.3 %	10.0-44 %	<b>Recovery greater than upper data quality objective</b>
EP075(SIM)S: Phenolic Compound Surrogates	ES1405527-011	VR_C_SW01	<b>Phenol-d6</b>	13127-88-3	47.4 %	10.0-44 %	<b>Recovery greater than upper data quality objective</b>
EP080S: TPH(V)/BTEX Surrogates	ES1405527-012	VR_C_SW02	<b>Toluene-D8</b>	2037-26-5	135 %	79-131 %	<b>Recovery greater than upper data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.



- **No Quality Control Sample Frequency Outliers exist.**
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1405527</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 4
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

#### Dates

Date Samples Received	: 13-MAR-2014	Issue Date	: 15-MAR-2014 13:06
Client Requested Due Date	: 26-MAR-2014	Scheduled Reporting Date	: <b>26-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 16
Security Seal	: Intact.	No. of samples analysed	: 16

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_120314 received 100mL amber glass , therefore PAH standard LOR conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA150* Particle Size Analysis by Sieving	SOIL - EG020T (solids) Total Metals by ICP-MS	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only	SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 (ICPMS not Bne) Standard 13 Metals by ICPMS	SOIL - S-04 TRH/BTEXN
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	✓	✓	✓			✓	✓	✓
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	✓	✓	✓			✓	✓	✓
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	✓	✓	✓			✓	✓	✓
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	✓	✓	✓			✓	✓	✓
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	✓	✓	✓			✓	✓	✓
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-009	13-MAR-2014 15:00	TRIP SPIKE						✓			
ES1405527-016	13-MAR-2014 15:00	TSC						✓			

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture
ES1405527-010	13-MAR-2014 15:00	TRIP BLANK	✓



Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total metals in Saline Water Suite A	WATER - EG093B-T Total Metals in Saline Water - Suite B	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN
ES1405527-011	12-MAR-2014 15:00	VR_C_SW01		✓	✓	✓	✓	✓		✓
ES1405527-012	12-MAR-2014 15:00	VR_C_SW02		✓	✓	✓	✓	✓		✓
ES1405527-013	12-MAR-2014 15:00	VR_C_SW03		✓	✓	✓	✓	✓		✓
ES1405527-014	12-MAR-2014 15:00	VR_M_SW02		✓	✓	✓	✓	✓		✓
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓						✓	

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405527**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : JD</b></p>	<p><b>Page : 1 of 4</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 13-MAR-2014</b></p> <p><b>Client Requested Due Date : 26-MAR-2014</b></p>	<p><b>Issue Date : 17-MAR-2014 15:52</b></p> <p><b>Scheduled Reporting Date : 26-MAR-2014</b></p>
---	---

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.2°C - Ice present</b></p> <p><b>No. of samples received : 16</b></p> <p><b>No. of samples analysed : 16</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_120314 received 100mL amber glass , therefore PAH standard LOR conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EG020T (solids) Total Metals by ICP-MS)	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only	SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 (ICPMS not Brie) Standard 13 Metals by ICPMS
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	✓	✓	✓	✓		✓	✓
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	✓	✓	✓	✓		✓	✓
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	✓	✓	✓	✓		✓	✓
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	✓	✓	✓	✓		✓	✓
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	✓	✓	✓	✓		✓	✓
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-009	13-MAR-2014 15:00	TRIP SPIKE						✓		
ES1405527-016	13-MAR-2014 15:00	TSC						✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN	SOIL - S-18 (NO MOIST) TRH(C5-C9)/BTEXN with No Moisture for TBs
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	
ES1405527-010	13-MAR-2014 15:00	TRIP BLANK		✓



Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total Metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T Total Metals in Saline Water - Suite B by	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN
ES1405527-011	12-MAR-2014 15:00	VR_C_SW01		✓	✓	✓	✓	✓		✓
ES1405527-012	12-MAR-2014 15:00	VR_C_SW02		✓	✓	✓	✓	✓		✓
ES1405527-013	12-MAR-2014 15:00	VR_C_SW03		✓	✓	✓	✓	✓		✓
ES1405527-014	12-MAR-2014 15:00	VR_M_SW02		✓	✓	✓	✓	✓		✓
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓						✓	

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------







## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405672</b>	Page	: 1 of 20
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 23
Site	: ----	No. of samples analysed	: 23
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS05_0.60	VR_M_SS05_1.0	VR_M_SS05_2.0	VR_C_SS06_0.15	VR_M_SS06_0.30
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405672-001	ES1405672-002	ES1405672-003	ES1405672-004	ES1405672-005
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	92	62	70	10	46
+150µm	----	1	%	91	44	64	6	24
+300µm	----	1	%	84	38	52	5	5
+425µm	----	1	%	70	32	41	4	2
+600µm	----	1	%	54	24	30	3	1
+1180µm	----	1	%	36	8	15	2	<1
+2.36mm	----	1	%	24	2	10	1	<1
+4.75mm	----	1	%	12	2	5	<1	<1
+9.5mm	----	1	%	4	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.2	8.1	7.7	8.6	8.3
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	23.3	26.5	39.2	23.2	30.1
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	8	38	30	90	54
Sand (>75 µm)	----	1	%	68	60	60	9	46
Gravel (>2mm)	----	1	%	24	3	10	1	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	<1	<1	6	<1	4
Barium	7440-39-3	0.1	mg/kg	3.1	2.9	6.0	20.4	3.1
Thallium	7440-28-0	0.1	mg/kg	0.1	<0.1	0.2	<0.1	0.2
Arsenic	7440-38-2	0.1	mg/kg	7.3	8.3	6.8	0.9	7.4
Cobalt	7440-48-4	0.1	mg/kg	1.4	2.1	2.5	1.2	2.7
Beryllium	7440-41-7	0.1	mg/kg	0.2	0.3	0.3	0.4	0.4
Boron	7440-42-8	5	mg/kg	12	22	19	12	20
Manganese	7439-96-5	0.1	mg/kg	68.5	106	61.1	4.6	64.6
Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.1	0.3	<0.1	0.1
Molybdenum	7439-98-7	0.1	mg/kg	7.0	3.7	10.3	0.1	4.3
Chromium	7440-47-3	0.1	mg/kg	3.9	4.8	9.7	4.3	14.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS05_0.60	VR_M_SS05_1.0	VR_M_SS05_2.0	VR_C_SS06_0.15	VR_M_SS06_0.30
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-001	ES1405672-002	ES1405672-003	ES1405672-004	ES1405672-005
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	1.8	2.7	5.4	6.1	3.0
Vanadium	7440-62-2	1	mg/kg	13	13	40	7	27
Lead	7439-92-1	0.1	mg/kg	2.7	4.3	6.4	5.3	3.8
Nickel	7440-02-0	0.1	mg/kg	2.1	2.6	3.7	1.6	3.1
Zinc	7440-66-6	0.5	mg/kg	5.8	8.2	33.2	7.7	11.8
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.47	0.69	1.20	0.21	0.66
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS05_0.60	VR_M_SS05_1.0	VR_M_SS05_2.0	VR_C_SS06_0.15	VR_M_SS06_0.30
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-001	ES1405672-002	ES1405672-003	ES1405672-004	ES1405672-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	<10	<10
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	<10	<10
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	<10
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	<10	<10
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	<10	<10	10	<10	<10
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS05_0.60	VR_M_SS05_1.0	VR_M_SS05_2.0	VR_C_SS06_0.15	VR_M_SS06_0.30
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-001	ES1405672-002	ES1405672-003	ES1405672-004	ES1405672-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	<10	<10	<10	<10
Phenanthrene	85-01-8	10	µg/kg	<10	<10	<10	<10	<10
Pyrene	129-00-0	10	µg/kg	<10	<10	20	<10	<10
^ Sum of PAHs	----	10	µg/kg	<10	<10	30	<10	<10
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	<10	<10
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	10	10
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.3	88.7	88.9	89.5	87.2
2-Chlorophenol-D4	93951-73-6	0.1	%	88.7	91.4	89.9	91.8	89.7
2,4,6-Tribromophenol	118-79-6	0.1	%	81.2	82.7	83.1	84.5	81.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.2	95.4	94.2	95.7	93.3
Anthracene-d10	1719-06-8	0.1	%	97.3	99.6	98.4	99.9	97.6
4-Terphenyl-d14	1718-51-0	0.1	%	93.5	95.4	94.1	95.5	94.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	92.5	79.0	92.6	90.4	89.6
Toluene-D8	2037-26-5	0.1	%	94.4	82.2	92.3	92.6	93.6
4-Bromofluorobenzene	460-00-4	0.1	%	87.2	93.8	97.6	98.2	91.4
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.5	90.1	97.1	80.0	74.3
Anthracene-d10	1719-06-8	0.1	%	104	91.1	101	83.3	78.0
4-Terphenyl-d14	1718-51-0	0.1	%	114	99.2	112	85.0	78.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS06_0.65	VR_M_SS01_0.20	VR_M_SS01_0.40	VR_M_SS03_0.20	VR_M_SS03_0.45
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-006	ES1405672-007	ES1405672-008	ES1405672-009	ES1405672-010
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	50	22	24	17	5
+150µm	----	1	%	16	13	12	11	2
+300µm	----	1	%	8	5	6	6	1
+425µm	----	1	%	5	2	4	5	<1
+600µm	----	1	%	4	2	3	5	<1
+1180µm	----	1	%	3	1	1	4	<1
+2.36mm	----	1	%	3	<1	<1	3	<1
+4.75mm	----	1	%	3	<1	<1	3	<1
+9.5mm	----	1	%	2	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.3	8.1	7.7	8.0	7.6
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	25.9	48.7	52.2	51.4	55.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	50	78	76	83	95
Sand (>75 µm)	----	1	%	47	21	24	13	5
Gravel (>2mm)	----	1	%	3	1	<1	3	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	<1	8	2	4	2
Barium	7440-39-3	0.1	mg/kg	3.6	5.4	4.9	5.5	5.8
Thallium	7440-28-0	0.1	mg/kg	<0.1	0.3	0.2	0.2	0.1
Arsenic	7440-38-2	0.1	mg/kg	7.6	11.1	10.3	10.4	9.6
Cobalt	7440-48-4	0.1	mg/kg	2.3	4.3	4.4	4.8	4.5
Beryllium	7440-41-7	0.1	mg/kg	0.3	0.7	0.5	0.7	0.7
Boron	7440-42-8	5	mg/kg	16	59	52	58	59
Manganese	7439-96-5	0.1	mg/kg	50.8	117	150	145	166
Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.4	0.1	0.3	0.2
Molybdenum	7439-98-7	0.1	mg/kg	1.6	12.8	15.4	14.1	16.5
Chromium	7440-47-3	0.1	mg/kg	4.3	20.8	9.6	17.6	11.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VR_M_SS06_0.65	VR_M_SS01_0.20	VR_M_SS01_0.40	VR_M_SS03_0.20	VR_M_SS03_0.45
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405672-006	ES1405672-007	ES1405672-008	ES1405672-009	ES1405672-010
Compound	CAS Number	LOR	Unit					
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	1.8	8.2	6.8	9.0	8.3
Vanadium	7440-62-2	1	mg/kg	10	50	28	46	34
Lead	7439-92-1	0.1	mg/kg	3.4	7.1	5.3	7.3	6.2
Nickel	7440-02-0	0.1	mg/kg	2.2	6.0	6.8	7.3	7.9
Zinc	7440-66-6	0.5	mg/kg	7.7	27.6	18.5	28.2	22.3
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.51	2.82	3.32	3.03	3.97
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<2	<2	<2
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.8	<0.8	<0.8
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS06_0.65	VR_M_SS01_0.20	VR_M_SS01_0.40	VR_M_SS03_0.20	VR_M_SS03_0.45
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-006	ES1405672-007	ES1405672-008	ES1405672-009	ES1405672-010
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	<10	<10
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	<10	<10
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	<10
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	<10	<10
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	<10	<10	<10	<10	<10
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	<10	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VR_M_SS06_0.65	VR_M_SS01_0.20	VR_M_SS01_0.40	VR_M_SS03_0.20	VR_M_SS03_0.45
Client sampling date / time	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
	ES1405672-006	ES1405672-007	ES1405672-008	ES1405672-009	ES1405672-010

Compound	CAS Number	LOR	Unit	ES1405672-006	ES1405672-007	ES1405672-008	ES1405672-009	ES1405672-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	<10	<10	<10	<10
Phenanthrene	85-01-8	10	µg/kg	<10	<10	<10	<10	<10
Pyrene	129-00-0	10	µg/kg	<10	20	<10	20	<10
^ Sum of PAHs	----	10	µg/kg	<10	20	<10	20	<10
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	<10	<10
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	10	10
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	84.8	87.0	89.3	89.6	90.6
2-Chlorophenol-D4	93951-73-6	0.1	%	87.9	88.3	91.8	91.7	93.3
2,4,6-Tribromophenol	118-79-6	0.1	%	79.2	79.6	82.4	83.5	83.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	92.5	92.6	95.8	96.4	97.0
Anthracene-d10	1719-06-8	0.1	%	96.4	96.6	99.9	101	101
4-Terphenyl-d14	1718-51-0	0.1	%	93.9	93.1	97.4	99.3	96.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.6	82.2	88.2	112	88.4
Toluene-D8	2037-26-5	0.1	%	89.5	79.7	86.5	116	77.0
4-Bromofluorobenzene	460-00-4	0.1	%	92.7	91.2	88.0	115	88.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.6	73.8	88.6	92.3	82.7
Anthracene-d10	1719-06-8	0.1	%	94.4	80.8	92.0	97.5	87.7
4-Terphenyl-d14	1718-51-0	0.1	%	95.7	84.1	101	106	99.4



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS04_0.25	VR_M_SS04_0.50	VR_C_SS05_0.25	VR_C_SS05_0.55	VR_C_SS05_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-011	ES1405672-012	ES1405672-013	ES1405672-014	ES1405672-015
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	12	15	51	37	67
+150µm	----	1	%	6	4	18	7	51
+300µm	----	1	%	2	2	2	2	20
+425µm	----	1	%	2	<1	1	1	11
+600µm	----	1	%	1	<1	<1	<1	8
+1180µm	----	1	%	1	<1	<1	<1	6
+2.36mm	----	1	%	<1	<1	<1	<1	3
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	8.1	7.9	8.7	8.8	7.8
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	50.4	50.8	32.4	34.5	43.9
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	88	85	49	63	33
Sand (>75 µm)	----	1	%	11	14	51	36	64
Gravel (>2mm)	----	1	%	1	<1	<1	<1	3
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	6	2	7	5	2
Barium	7440-39-3	0.1	mg/kg	5.8	5.5	17.7	17.4	5.5
Thallium	7440-28-0	0.1	mg/kg	0.3	0.2	<0.1	<0.1	<0.1
Arsenic	7440-38-2	0.1	mg/kg	11.1	10.4	5.0	4.3	2.4
Cobalt	7440-48-4	0.1	mg/kg	4.9	4.6	2.1	2.2	3.0
Beryllium	7440-41-7	0.1	mg/kg	0.8	0.7	0.3	0.3	0.2
Boron	7440-42-8	5	mg/kg	55	54	19	16	28
Manganese	7439-96-5	0.1	mg/kg	141	168	21.1	19.8	31.1
Cadmium	7440-43-9	0.1	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Molybdenum	7439-98-7	0.1	mg/kg	8.6	12.8	3.7	2.9	9.1
Chromium	7440-47-3	0.1	mg/kg	21.2	11.3	10.7	9.1	3.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS04_0.25	VR_M_SS04_0.50	VR_C_SS05_0.25	VR_C_SS05_0.55	VR_C_SS05_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-011	ES1405672-012	ES1405672-013	ES1405672-014	ES1405672-015
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	8.4	8.0	4.5	4.8	3.7
Vanadium	7440-62-2	1	mg/kg	52	34	50	40	16
Lead	7439-92-1	0.1	mg/kg	7.9	6.0	9.1	8.2	2.7
Nickel	7440-02-0	0.1	mg/kg	6.8	7.1	2.7	3.0	3.3
Zinc	7440-66-6	0.5	mg/kg	30.6	23.7	39.4	30.1	10.9
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	2.85	2.75	0.65	0.72	4.31
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	1.1	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VR_M_SS04_0.25	VR_M_SS04_0.50	VR_C_SS05_0.25	VR_C_SS05_0.55	VR_C_SS05_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-011	ES1405672-012	ES1405672-013	ES1405672-014	ES1405672-015
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	<10	<10
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	<10	<10
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	<10
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	<10	<10
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	10	<10	<10	<10	<10
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	<10	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_M_SS04_0.25	VR_M_SS04_0.50	VR_C_SS05_0.25	VR_C_SS05_0.55	VR_C_SS05_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-011	ES1405672-012	ES1405672-013	ES1405672-014	ES1405672-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	<10	<10	10	<10
Phenanthrene	85-01-8	10	µg/kg	<10	<10	<10	<10	<10
Pyrene	129-00-0	10	µg/kg	30	<10	10	10	<10
^ Sum of PAHs	----	10	µg/kg	40	<10	10	20	<10
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	<10	<10
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	10	10
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	87.1	83.0	87.9	85.9	89.3
2-Chlorophenol-D4	93951-73-6	0.1	%	89.5	85.5	89.9	88.3	90.4
2,4,6-Tribromophenol	118-79-6	0.1	%	80.5	74.5	84.1	79.0	84.7
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.6	90.4	93.8	93.1	94.7
Anthracene-d10	1719-06-8	0.1	%	98.1	93.6	99.0	97.8	100
4-Terphenyl-d14	1718-51-0	0.1	%	94.6	90.8	94.4	93.6	94.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	121	104	82.8	99.5	93.5
Toluene-D8	2037-26-5	0.1	%	118	105	81.2	96.4	90.8
4-Bromofluorobenzene	460-00-4	0.1	%	114	102	99.6	99.7	89.5
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.3	94.8	70.3	77.3	98.1
Anthracene-d10	1719-06-8	0.1	%	103	98.2	75.1	84.3	98.3
4-Terphenyl-d14	1718-51-0	0.1	%	115	115	80.9	89.5	116



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS04_0.20	VR_C_SS04_0.30	D05_130314_JD_0.25	D05_130314_JD_0.55	D05_130314_JD_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-016	ES1405672-017	ES1405672-019	ES1405672-020	ES1405672-021
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	12	5	49	40	66
+150µm	----	1	%	10	4	8	17	38
+300µm	----	1	%	10	3	2	2	19
+425µm	----	1	%	9	2	<1	1	10
+600µm	----	1	%	8	2	<1	<1	7
+1180µm	----	1	%	6	1	<1	<1	4
+2.36mm	----	1	%	3	<1	<1	<1	2
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	7.1	5.9	8.5	8.6	7.7
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	52.8	41.0	32.7	34.6	46.8
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	88	95	51	60	34
Sand (>75 µm)	----	1	%	9	4	49	39	64
Gravel (>2mm)	----	1	%	3	1	<1	<1	2
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
<b>EG020T: Total Metals by ICP-MS</b>								
Selenium	7782-49-2	1	mg/kg	2	1	8	5	2
Barium	7440-39-3	0.1	mg/kg	58.4	60.1	21.6	16.1	6.4
Thallium	7440-28-0	0.1	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Arsenic	7440-38-2	0.1	mg/kg	0.8	0.7	4.9	4.3	2.6
Cobalt	7440-48-4	0.1	mg/kg	0.8	1.3	2.3	2.2	3.4
Beryllium	7440-41-7	0.1	mg/kg	0.8	1.0	0.3	0.3	0.2
Boron	7440-42-8	5	mg/kg	33	6	16	14	27
Manganese	7439-96-5	0.1	mg/kg	11.9	3.5	23.0	18.9	37.4
Cadmium	7440-43-9	0.1	mg/kg	0.1	<0.1	0.1	0.1	<0.1
Molybdenum	7439-98-7	0.1	mg/kg	0.8	<0.1	3.3	2.5	9.8
Chromium	7440-47-3	0.1	mg/kg	6.8	7.9	12.4	8.8	3.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS04_0.20	VR_C_SS04_0.30	D05_130314_JD_0.25	D05_130314_JD_0.55	D05_130314_JD_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-016	ES1405672-017	ES1405672-019	ES1405672-020	ES1405672-021
<b>EG020T: Total Metals by ICP-MS - Continued</b>								
Copper	7440-50-8	0.1	mg/kg	3.0	0.9	4.8	4.8	3.9
Vanadium	7440-62-2	1	mg/kg	10	10	46	36	15
Lead	7439-92-1	0.1	mg/kg	13.4	11.6	9.5	8.2	2.9
Nickel	7440-02-0	0.1	mg/kg	3.6	3.7	3.1	2.8	3.9
Zinc	7440-66-6	0.5	mg/kg	8.7	2.4	44.3	30.0	12.4
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	8.84	6.60	0.70	0.70	4.34
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	10	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	110	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	110	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	220	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	170	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS04_0.20	VR_C_SS04_0.30	D05_130314_JD_0.25	D05_130314_JD_0.55	D05_130314_JD_0.80
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405672-016	ES1405672-017	ES1405672-019	ES1405672-020	ES1405672-021
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	220	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	<10	<10
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	<10
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	<10
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	<10	<10
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	<10
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	<10	<10
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	<10
Fluoranthene	206-44-0	10	µg/kg	10	<10	<10	10	<10
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	<10
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	<10
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	<100
Naphthalene	91-20-3	10	µg/kg	10	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VR_C_SS04_0.20	VR_C_SS04_0.30	D05_130314_JD_0.25	D05_130314_JD_0.55	D05_130314_JD_0.80
Client sampling date / time	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	ES1405672-016	ES1405672-017	ES1405672-019	ES1405672-020	ES1405672-021

Compound	CAS Number	LOR	Unit	ES1405672-016	ES1405672-017	ES1405672-019	ES1405672-020	ES1405672-021
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	<10	<10	<10	<10
Phenanthrene	85-01-8	10	µg/kg	10	<10	<10	<10	<10
Pyrene	129-00-0	10	µg/kg	20	<10	20	20	<10
^ Sum of PAHs	----	10	µg/kg	50	<10	20	30	<10
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	<10	<10
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	10	10
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	90.7	86.1	91.0	86.7	88.8
2-Chlorophenol-D4	93951-73-6	0.1	%	89.4	85.6	91.2	88.4	89.4
2,4,6-Tribromophenol	118-79-6	0.1	%	88.1	75.2	89.4	83.6	84.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	94.6	90.5	95.7	92.3	94.1
Anthracene-d10	1719-06-8	0.1	%	99.5	94.5	102	97.1	98.7
4-Terphenyl-d14	1718-51-0	0.1	%	95.0	90.3	96.4	93.7	94.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.9	82.3	73.1	93.6	93.9
Toluene-D8	2037-26-5	0.1	%	80.7	82.1	73.1	89.1	90.1
4-Bromofluorobenzene	460-00-4	0.1	%	84.0	83.2	88.9	95.6	93.2
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	90.2	96.8	78.4	79.8	78.5
Anthracene-d10	1719-06-8	0.1	%	92.9	89.1	83.2	84.1	84.7
4-Terphenyl-d14	1718-51-0	0.1	%	98.6	96.5	91.9	95.0	103



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS (8)	TRIP BLANK	TSC	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1405672-022	ES1405672-023	ES1405672-024	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.8	<0.2	0.7	----	----
Toluene	108-88-3	0.5	mg/kg	18.6	<0.5	18.2	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	2.2	<0.5	1.9	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.6	<0.5	9.0	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	4.1	<0.5	3.7	----	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	14.7	----	12.7	----	----
^ Sum of BTEX	----	0.2	mg/kg	36.3	----	33.5	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	102	101	----	----
Toluene-D8	2037-26-5	0.1	%	111	85.3	110	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	82.7	99.0	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	26.9	131
Anthracene-d10	1719-06-8	35	139
4-Terphenyl-d14	1718-51-0	29.7	164

**QUALITY CONTROL REPORT**

Work Order	: <b>ES1405672</b>	Page	: 1 of 14
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 23
Order number	: 0237747	No. of samples analysed	: 23
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Brisbane Acid Sulphate Soils
		Sydney Organics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3349015)</b>									
ES1405023-030	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.2	5.2	0.0	0% - 20%
ES1405661-024	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.0	2.8	0% - 20%
<b>EA002 : pH (Soils) (QC Lot: 3349016)</b>									
ES1405672-008	VR_M_SS01_0.40	EA002: pH Value	----	0.1	pH Unit	7.7	7.8	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3342000)</b>									
ES1405523-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	19.2	7.8	0% - 20%
ES1405672-006	VR_M_SS06_0.65	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	25.9	23.5	9.6	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3342001)</b>									
ES1405672-015	VR_C_SS05_0.80	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	43.9	43.3	1.3	0% - 20%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3356800)</b>									
ES1405672-001	VR_M_SS05_0.60	EG020X-T: Barium	7440-39-3	0.1	mg/kg	3.1	3.0	0.0	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	1.4	1.3	0.0	0% - 50%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	68.5	67.2	2.0	0% - 20%
		EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	7.0	6.9	2.0	0% - 20%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	13	9	35.8	0% - 50%
ES1405672-010	VR_M_SS03_0.45	EG020X-T: Barium	7440-39-3	0.1	mg/kg	5.8	5.4	6.5	0% - 20%
		EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	4.5	4.4	2.3	0% - 20%
		EG020X-T: Manganese	7439-96-5	0.1	mg/kg	166	156	5.8	0% - 20%
		EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	16.5	14.7	11.4	0% - 20%
		EG020X-T: Vanadium	7440-62-2	1	mg/kg	34	35	0.0	0% - 20%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3356801)</b>									
ES1405672-001	VR_M_SS05_0.60	EG020Y-T: Thallium	7440-28-0	0.1	mg/kg	0.1	<0.1	0.0	No Limit
		EG020Y-T: Selenium	7782-49-2	1	mg/kg	<1	<1	0.0	No Limit
ES1405672-010	VR_M_SS03_0.45	EG020Y-T: Thallium	7440-28-0	0.1	mg/kg	0.1	0.1	0.0	No Limit
		EG020Y-T: Selenium	7782-49-2	1	mg/kg	2	2	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3356799)</b>									
ES1405672-001	VR_M_SS05_0.60	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405672-010	VR_M_SS03_0.45	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3346764)</b>									
ES1405672-001	VR_M_SS05_0.60	EP003: Total Organic Carbon	----	0.02	%	0.47	0.51	7.8	0% - 20%
ES1405672-011	VR_M_SS04_0.25	EP003: Total Organic Carbon	----	0.02	%	2.85	2.94	3.1	0% - 20%
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342458)</b>									
ES1405672-001	VR_M_SS05_0.60	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342458) - continued</b>									
ES1405672-001	VR_M_SS05_0.60	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405672-011	VR_M_SS04_0.25	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.8	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<2	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3341860)</b>									
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405672-011	VR_M_SS04_0.25	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342457)</b>									
ES1405672-001	VR_M_SS05_0.60	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405672-011	VR_M_SS04_0.25	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344810)</b>									
ES1405660-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3341860)</b>									
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405672-011	VR_M_SS04_0.25	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342457)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342457) - continued</b>										
ES1405672-001	VR_M_SS05_0.60	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405672-011	VR_M_SS04_0.25	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344810)</b>										
ES1405660-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405660-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3341860)</b>										
ES1405672-001	VR_M_SS05_0.60	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
			95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405672-011	VR_M_SS04_0.25	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3344810)</b>										
ES1405660-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
			95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405660-013	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342808)</b>										



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342808) - continued</b>									
ES1405672-001	VR_M_SS05_0.60	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Anthracene	120-12-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Chrysene	218-01-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Naphthalene	91-20-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	<10	<10	0.0	No Limit
EP132: Phenanthrene	85-01-8	10	µg/kg	<10	<10	0.0	No Limit		
EP132: Pyrene	129-00-0	10	µg/kg	<10	<10	0.0	No Limit		
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit		
ES1405672-011	VR_M_SS04_0.25	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Anthracene	120-12-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Chrysene	218-01-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	10	10	0.0	No Limit
EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit		
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	0.0	No Limit		

Page : 7 of 14  
 Work Order : ES1405672  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342808) - continued</b>									
ES1405672-011	VR_M_SS04_0.25	EP132: Naphthalene	91-20-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Phenanthrene	85-01-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Pyrene	129-00-0	10	µg/kg	30	20	0.0	No Limit
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3356798)</b>									
EG020T: Arsenic	7440-38-2	0.1	mg/kg	<0.1	21.7 mg/kg	102	70	130	
EG020T: Beryllium	7440-41-7	0.1	mg/kg	<0.1	5.63 mg/kg	99.4	70	130	
EG020T: Boron	7440-42-8	0.1	mg/kg	<0.5	----	----	----	----	
EG020T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	4.64 mg/kg	99.7	70	130	
EG020T: Chromium	7440-47-3	0.1	mg/kg	<0.1	43.9 mg/kg	93.2	70	130	
EG020T: Copper	7440-50-8	0.1	mg/kg	<0.1	32.0 mg/kg	102	70	130	
EG020T: Lead	7439-92-1	0.1	mg/kg	<0.1	40.0 mg/kg	102	70	130	
EG020T: Nickel	7440-02-0	0.1	mg/kg	<0.1	55.0 mg/kg	122	70	130	
EG020T: Zinc	7440-66-6	0.5	mg/kg	<0.5	60.8 mg/kg	108	70	130	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3356800)</b>									
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	143 mg/kg	111	70	134	
EG020X-T: Cobalt	7440-48-4	0.1	mg/kg	<0.1	16.0 mg/kg	125	77	131	
EG020X-T: Manganese	7439-96-5	0.1	mg/kg	<0.1	130 mg/kg	102	74	134	
EG020X-T: Molybdenum	7439-98-7	0.1	mg/kg	<0.1	7.9 mg/kg	84.6	71	129	
EG020X-T: Vanadium	7440-62-2	1	mg/kg	<1	29.6 mg/kg	100	87	129	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3356801)</b>									
EG020Y-T: Selenium	7782-49-2	1	mg/kg	<1	5.37 mg/kg	109	73	131	
EG020Y-T: Thallium	7440-28-0	0.1	mg/kg	<0.1	5.96 mg/kg	93.3	80	138	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3356799)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.2	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3346764)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	1.94 %	110	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342458)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	91.6	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	90.4	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.9	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	91.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	89.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	87.1	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	92.1	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.5	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	84.1	68.9	112	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342458) - continued</b>								
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	31.7	10	57
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341860)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	117	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342457)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	89.2	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.1	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.9	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341860)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	110	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342457)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.4	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	98.5	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	103	63	131
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.2	68.4	128
<b>EP080: BTEXN (QCLot: 3341860)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.4	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	104	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.3	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	100	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	83.9	62	138
<b>EP080: BTEXN (QCLot: 3344810)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.3	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.8	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	91.0	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.4	62	138
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342808)</b>								
EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	100 µg/kg	86.2	36	120
EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	100 µg/kg	101	51	135
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	100 µg/kg	128	14.9	157



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342808) - continued</b>									
EP132: Acenaphthene	83-32-9	10	µg/kg	<10	100 µg/kg	103	57	125	
EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	100 µg/kg	89.7	48	132	
EP132: Anthracene	120-12-7	10	µg/kg	<10	100 µg/kg	94.0	50	114	
EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	100 µg/kg	108	66	124	
EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	100 µg/kg	108	43	125	
EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	100 µg/kg	90.8	64	130	
EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	100 µg/kg	123	55	141	
EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	100 µg/kg	96.6	46	134	
EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	100 µg/kg	106	65	129	
EP132: Chrysene	218-01-9	10	µg/kg	<10	100 µg/kg	102	69	129	
EP132: Coronene	191-07-1	10	µg/kg	<10	100 µg/kg	85.0	26.9	149	
EP132: Dibenzo(a,h)anthracene	53-70-3	10	µg/kg	<10	100 µg/kg	97.3	50	134	
EP132: Fluoranthene	206-44-0	10	µg/kg	<10	100 µg/kg	103	68	130	
EP132: Fluorene	86-73-7	10	µg/kg	<10	100 µg/kg	108	57	131	
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	100 µg/kg	97.6	46	138	
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	100 µg/kg	118	50	138	
EP132: Naphthalene	91-20-3	10	µg/kg	<10	100 µg/kg	63.7	50	132	
EP132: Perylene	198-55-0	10	µg/kg	<10	100 µg/kg	99.0	48	132	
EP132: Phenanthrene	85-01-8	10	µg/kg	<10	100 µg/kg	108	67	127	
EP132: Pyrene	129-00-0	10	µg/kg	<10	100 µg/kg	105	66	130	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3356801)</b>								
ES1405672-001	VR_M_SS05_0.60	EG020Y-T: Selenium	7782-49-2	50 mg/kg	89.1	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3356799)</b>								
ES1405672-001	VR_M_SS05_0.60	EG035T: Mercury	7439-97-6	5 mg/kg	96.9	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342458)</b>								
ES1405672-001	VR_M_SS05_0.60	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.8	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	84.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.6	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.1	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	60.4	20	130	





Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341860)</b>							
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.7	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342457)</b>							
ES1405672-001	VR_M_SS05_0.60	EP071: C10 - C14 Fraction	----	640 mg/kg	81.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	95.4	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>							
ES1405660-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341860)</b>							
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.0	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342457)</b>							
ES1405672-001	VR_M_SS05_0.60	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.4	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.3	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>							
ES1405660-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	70	130
<b>EP080: BTEXN (QCLot: 3341860)</b>							
ES1405672-001	VR_M_SS05_0.60	EP080: Benzene	71-43-2	2.5 mg/kg	81.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	83.2	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.6	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	81.9	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.5	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	70	130
<b>EP080: BTEXN (QCLot: 3344810)</b>							
ES1405660-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.4	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.2	70	130
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342808)</b>							
ES1405672-001	VR_M_SS05_0.60	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	87.5	15	119
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	115	49	129
		EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	106	14.9	157
		EP132: Acenaphthene	83-32-9	100 µg/kg	100	57	125
		EP132: Acenaphthylene	208-96-8	100 µg/kg	98.1	37	123



Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
				Low	High		
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342808) - continued</b>							
ES1405672-001	VR_M_SS05_0.60	EP132: Anthracene	120-12-7	100 µg/kg	99.2	50	114
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	104	66	124
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	106	43	125
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	95.9	64	130
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	110	43	145
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	78.9	46	134
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	110	65	129
		EP132: Chrysene	218-01-9	100 µg/kg	110	69	129
		EP132: Coronene	191-07-1	100 µg/kg	60.5	26.9	149
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	85.0	50	134
		EP132: Fluoranthene	206-44-0	100 µg/kg	111	68	130
		EP132: Fluorene	86-73-7	100 µg/kg	105	57	131
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	100 µg/kg	83.7	46	138
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	81.7	50	138
		EP132: Naphthalene	91-20-3	100 µg/kg	63.9	48	126
		EP132: Perylene	198-55-0	100 µg/kg	96.4	37	125
		EP132: Phenanthrene	85-01-8	100 µg/kg	105	67	127
		EP132: Pyrene	129-00-0	100 µg/kg	116	66	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341860)</b>										
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.7	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341860)</b>										
ES1405672-001	VR_M_SS05_0.60	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.0	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3341860)</b>										
ES1405672-001	VR_M_SS05_0.60	EP080: Benzene	71-43-2	2.5 mg/kg	81.3	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	83.2	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.6	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	81.9	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.5	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342457)</b>										



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342457) - continued</b>										
ES1405672-001	VR_M_SS05_0.60	EP071: C10 - C14 Fraction	----	640 mg/kg	81.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.9	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	95.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342457)</b>										
ES1405672-001	VR_M_SS05_0.60	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.4	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.3	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342458)</b>										
ES1405672-001	VR_M_SS05_0.60	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.8	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	84.4	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.1	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	60.4	----	20	130	----	----
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342808)</b>										
ES1405672-001	VR_M_SS05_0.60	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	87.5	----	15	119	----	----
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	115	----	49	129	----	----
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	106	----	14.9	157	----	----
		EP132: Acenaphthene	83-32-9	100 µg/kg	100	----	57	125	----	----
		EP132: Acenaphthylene	208-96-8	100 µg/kg	98.1	----	37	123	----	----
		EP132: Anthracene	120-12-7	100 µg/kg	99.2	----	50	114	----	----
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	104	----	66	124	----	----
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	106	----	43	125	----	----
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	95.9	----	64	130	----	----
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	110	----	43	145	----	----
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	78.9	----	46	134	----	----
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	110	----	65	129	----	----
		EP132: Chrysene	218-01-9	100 µg/kg	110	----	69	129	----	----
		EP132: Coronene	191-07-1	100 µg/kg	60.5	----	26.9	149	----	----
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	85.0	----	50	134	----	----
		EP132: Fluoranthene	206-44-0	100 µg/kg	111	----	68	130	----	----
		EP132: Fluorene	86-73-7	100 µg/kg	105	----	57	131	----	----
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	83.7	----	46	138	----	----
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	81.7	----	50	138	----	----
		EP132: Naphthalene	91-20-3	100 µg/kg	63.9	----	48	126	----	----
		EP132: Perylene	198-55-0	100 µg/kg	96.4	----	37	125	----	----
		EP132: Phenanthrene	85-01-8	100 µg/kg	105	----	67	127	----	----
		EP132: Pyrene	129-00-0	100 µg/kg	116	----	66	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>										
ES1405660-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.3	----	70	130	----	----

Page : 14 of 14  
 Work Order : ES1405672  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
				Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>											
ES1405660-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3344810)</b>											
ES1405660-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	104	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.4	----	70	130	----	----	
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	86.8	----	70	130	----	----	
		EP080: Naphthalene	95-47-6	2.5 mg/kg	88.2	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3356799)</b>											
ES1405672-001	VR_M_SS05_0.60	EG035T: Mercury	7439-97-6	5 mg/kg	96.9	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3356801)</b>											
ES1405672-001	VR_M_SS05_0.60	EG020Y-T: Selenium	7782-49-2	50 mg/kg	89.1	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405672</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 23
Order number	: 0237747	No. of samples analysed	: 23
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for **VOC in soils** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	20-MAR-2014	20-MAR-2014	✓	20-MAR-2014	20-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	----	----	----	17-MAR-2014	27-MAR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA150: Particle Sizing</b>							
<b>Pulp Bag (EA150)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	---	09-SEP-2014	----	26-MAR-2014	21-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>							
<b>Pulp Bag (EA150)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	---	09-SEP-2014	----	26-MAR-2014	21-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Soil Glass Jar - Unpreserved (EG020T)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	25-MAR-2014	09-SEP-2014	✓	26-MAR-2014	09-SEP-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Soil Glass Jar - Unpreserved (EG020X-T)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	25-MAR-2014	09-SEP-2014	✓	26-MAR-2014	09-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Soil Glass Jar - Unpreserved (EG020Y-T)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	25-MAR-2014	09-SEP-2014	✓	26-MAR-2014	09-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	25-MAR-2014	10-APR-2014	✓	27-MAR-2014	10-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	19-MAR-2014	10-APR-2014	✓	22-MAR-2014	10-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55,	VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	24-MAR-2014	27-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TS (8), TSC	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	25-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	24-MAR-2014	27-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP BLANK	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	25-MAR-2014	27-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP132)</b> VR_M_SS05_0.60, VR_M_SS05_2.0, VR_M_SS06_0.30, VR_M_SS01_0.20, VR_M_SS03_0.20, VR_M_SS04_0.25, VR_C_SS05_0.25, VR_C_SS05_0.80, VR_C_SS04_0.30, D05_130314_JD_0.55, VR_M_SS05_1.0, VR_C_SS06_0.15, VR_M_SS06_0.65, VR_M_SS01_0.40, VR_M_SS03_0.45, VR_M_SS04_0.50, VR_C_SS05_0.55, VR_C_SS04_0.20, D05_130314_JD_0.25, D05_130314_JD_0.80	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	25-MAR-2014	30-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	28	10.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	3	33	9.1	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Total Metals by ICP-MS	EG020T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Total Metals by ICP-MS	EG020T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite X	EG020X-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Total Metals by ICP-MS	EG020T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020) (ICPMS) Metals in solids are determined following an appropriate acid digestion. The ICPMS technique ionizes selected elements. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass / charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite Y	EG020Y-T	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	SOIL	USEPA 8270 GCMS Capillary column, SIM mode.
Preparation Methods	Method	Matrix	Method Descriptions



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids/ Acetylation	ORG17A-AC	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405672-019	D05_130314_JD_0.25	Toluene-D8	2037-26-5	73.1 %	73.9-132.1 %	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
pH (1:5)	3	33	9.1	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1405672</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 4
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

#### Dates

Date Samples Received	: 14-MAR-2014	Issue Date	: 15-MAR-2014 11:33
Client Requested Due Date	: 27-MAR-2014	Scheduled Reporting Date	: <b>27-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 23
Security Seal	: Intact.	No. of samples analysed	: 23

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EG020T Total Metals by ICPMS	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 (ICPMS not Brie) Standard 13 Metals by ICPMS
ES1405672-001	13-MAR-2014 15:00	VR_M_SS05_0.60	✓	✓	✓	✓	✓	✓	✓
ES1405672-002	13-MAR-2014 15:00	VR_M_SS05_1.0	✓	✓	✓	✓	✓	✓	✓
ES1405672-003	13-MAR-2014 15:00	VR_M_SS05_2.0	✓	✓	✓	✓	✓	✓	✓
ES1405672-004	13-MAR-2014 15:00	VR_C_SS06_0.15	✓	✓	✓	✓	✓	✓	✓
ES1405672-005	13-MAR-2014 15:00	VR_M_SS06_0.30	✓	✓	✓	✓	✓	✓	✓
ES1405672-006	13-MAR-2014 15:00	VR_M_SS06_0.65	✓	✓	✓	✓	✓	✓	✓
ES1405672-007	13-MAR-2014 15:00	VR_M_SS01_0.20	✓	✓	✓	✓	✓	✓	✓
ES1405672-008	13-MAR-2014 15:00	VR_M_SS01_0.40	✓	✓	✓	✓	✓	✓	✓
ES1405672-009	13-MAR-2014 15:00	VR_M_SS03_0.20	✓	✓	✓	✓	✓	✓	✓
ES1405672-010	13-MAR-2014 15:00	VR_M_SS03_0.45	✓	✓	✓	✓	✓	✓	✓
ES1405672-011	13-MAR-2014 15:00	VR_M_SS04_0.25	✓	✓	✓	✓	✓	✓	✓
ES1405672-012	13-MAR-2014 15:00	VR_M_SS04_0.50	✓	✓	✓	✓	✓	✓	✓
ES1405672-013	13-MAR-2014 15:00	VR_C_SS05_0.25	✓	✓	✓	✓	✓	✓	✓
ES1405672-014	13-MAR-2014 15:00	VR_C_SS05_0.55	✓	✓	✓	✓	✓	✓	✓
ES1405672-015	13-MAR-2014 15:00	VR_C_SS05_0.80	✓	✓	✓	✓	✓	✓	✓
ES1405672-016	13-MAR-2014 15:00	VR_C_SS04_0.20	✓	✓	✓	✓	✓	✓	✓
ES1405672-017	13-MAR-2014 15:00	VR_C_SS04_0.30	✓	✓	✓	✓	✓	✓	✓
ES1405672-019	13-MAR-2014 15:00	D05_130314_JD_0.25	✓	✓	✓	✓	✓	✓	✓
ES1405672-020	13-MAR-2014 15:00	D05_130314_JD_0.55	✓	✓	✓	✓	✓	✓	✓
ES1405672-021	13-MAR-2014 15:00	D05_130314_JD_0.80	✓	✓	✓	✓	✓	✓	✓
ES1405672-022	13-MAR-2014 15:00	TS (8)					✓		
ES1405672-024	13-MAR-2014 15:00	TSC					✓		



Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES1405672-001	13-MAR-2014 15:00	VR_M_SS05_0.60	✓	
ES1405672-002	13-MAR-2014 15:00	VR_M_SS05_1.0	✓	
ES1405672-003	13-MAR-2014 15:00	VR_M_SS05_2.0	✓	
ES1405672-004	13-MAR-2014 15:00	VR_C_SS06_0.15	✓	
ES1405672-005	13-MAR-2014 15:00	VR_M_SS06_0.30	✓	
ES1405672-006	13-MAR-2014 15:00	VR_M_SS06_0.65	✓	
ES1405672-007	13-MAR-2014 15:00	VR_M_SS01_0.20	✓	
ES1405672-008	13-MAR-2014 15:00	VR_M_SS01_0.40	✓	
ES1405672-009	13-MAR-2014 15:00	VR_M_SS03_0.20	✓	
ES1405672-010	13-MAR-2014 15:00	VR_M_SS03_0.45	✓	
ES1405672-011	13-MAR-2014 15:00	VR_M_SS04_0.25	✓	
ES1405672-012	13-MAR-2014 15:00	VR_M_SS04_0.50	✓	
ES1405672-013	13-MAR-2014 15:00	VR_C_SS05_0.25	✓	
ES1405672-014	13-MAR-2014 15:00	VR_C_SS05_0.55	✓	
ES1405672-015	13-MAR-2014 15:00	VR_C_SS05_0.80	✓	
ES1405672-016	13-MAR-2014 15:00	VR_C_SS04_0.20	✓	
ES1405672-017	13-MAR-2014 15:00	VR_C_SS04_0.30	✓	
ES1405672-019	13-MAR-2014 15:00	D05_130314_JD_0.25	✓	
ES1405672-020	13-MAR-2014 15:00	D05_130314_JD_0.55	✓	
ES1405672-021	13-MAR-2014 15:00	D05_130314_JD_0.80	✓	
ES1405672-023	13-MAR-2014 15:00	TRIP BLANK		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1405672</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : JD	<b>Page</b> : 1 of 4  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 14-MAR-2014 <b>Client Requested Due Date</b> : 27-MAR-2014	<b>Issue Date</b> : 17-MAR-2014 15:53 <b>Scheduled Reporting Date</b> : <b>27-MAR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 1 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 3.2°C - Ice present <b>No. of samples received</b> : 23 <b>No. of samples analysed</b> : 23
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.







Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-03 (ICPMS not Bne) Standard 13 Metals by ICPMS	SOIL - S-04 TRH/BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES1405672-001	13-MAR-2014 15:00	VR_M_SS05_0.60	✓	✓	
ES1405672-002	13-MAR-2014 15:00	VR_M_SS05_1.0	✓	✓	
ES1405672-003	13-MAR-2014 15:00	VR_M_SS05_2.0	✓	✓	
ES1405672-004	13-MAR-2014 15:00	VR_C_SS06_0.15	✓	✓	
ES1405672-005	13-MAR-2014 15:00	VR_M_SS06_0.30	✓	✓	
ES1405672-006	13-MAR-2014 15:00	VR_M_SS06_0.65	✓	✓	
ES1405672-007	13-MAR-2014 15:00	VR_M_SS01_0.20	✓	✓	
ES1405672-008	13-MAR-2014 15:00	VR_M_SS01_0.40	✓	✓	
ES1405672-009	13-MAR-2014 15:00	VR_M_SS03_0.20	✓	✓	
ES1405672-010	13-MAR-2014 15:00	VR_M_SS03_0.45	✓	✓	
ES1405672-011	13-MAR-2014 15:00	VR_M_SS04_0.25	✓	✓	
ES1405672-012	13-MAR-2014 15:00	VR_M_SS04_0.50	✓	✓	
ES1405672-013	13-MAR-2014 15:00	VR_C_SS05_0.25	✓	✓	
ES1405672-014	13-MAR-2014 15:00	VR_C_SS05_0.55	✓	✓	
ES1405672-015	13-MAR-2014 15:00	VR_C_SS05_0.80	✓	✓	
ES1405672-016	13-MAR-2014 15:00	VR_C_SS04_0.20	✓	✓	
ES1405672-017	13-MAR-2014 15:00	VR_C_SS04_0.30	✓	✓	
ES1405672-019	13-MAR-2014 15:00	D05_130314_JD_0.25	✓	✓	
ES1405672-020	13-MAR-2014 15:00	D05_130314_JD_0.55	✓	✓	
ES1405672-021	13-MAR-2014 15:00	D05_130314_JD_0.80	✓	✓	
ES1405672-023	13-MAR-2014 15:00	TRIP BLANK			✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**Environmental Division  
Sydney  
Work Order  
ES1405672**

7-280 Woodbank Road Smithfield NSW 2164  
555 E. Sumner, Sydney, NSW 1585  
E 14-15 Desima Court Brixton QLD 4816  
800 E. Bourkeville, Perth, Western Australia 6150  
2942, 10, Lakeside, Lakeside, Victoria 3207  
126 E. Perth, Perth, Western Australia 6150



Telephone : +61-2-8784 8555

Y66	No	N/A
Y69	No	N/A
	6	

RECEIVED BY: *Rm*

DATE/TIME: 15/3 19:00

DUNEDIN 5 Rox  
Ph: 02-4968 9433 E: r  
DUNEDIN 113 Geary  
Ph: 02-423 2063 E: n  
DUNEDIN 10 Hood Vn  
Ph: 02-9209 7685 E: r

DUNEDIN 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@anglobal.com  
DUNEDIN 24 Westall Road Springvale VIC 3171  
Ph: 03 3549 5000 E: samples.melbourne@anglobal.com  
DUNEDIN 27 Sydney Road Mudgee NSW 2850  
Ph: 02 6522 6735 E: mudgee.m@anglobal.com

CHATELAIDE 21 Bulimba Road Epping NSW 1505  
Ph: 06 8359 3890 E: edelano@anglobal.com  
CHATELAIDE 22 E. Sumner, Sydney, NSW 1585  
Ph: 02 4968 9433 E: r  
CHATELAIDE 44 Callimondan Drive Clinton QLD 4690  
Ph: 07 7471 3000 E: clinton@anglobal.com

TURNAROUND REQUIREMENTS:  Standard TAT (List due date);  Non Standard or urgent TAT (List due date):

COC SEQUENCE NUMBER (Circle)  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7

RECEIVED BY: *J. Devereux*

DATE/TIME: 13.3.14 1830

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

PROJECT MANAGER: JOHN EWING

SAMPLER: *JD*

COC emailed to ALS? ( YES / NO)

Email Reports to (will default to PM if no other addresses are listed): symphony.dellanoth@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.dellanoth@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <i>confes below</i>	TOTAL CONTAINERS <i>(refer to)</i>	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) <i>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (held filtered bottle required).</i>												Additional Information
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD Slieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	
1	VR-M-SS05-0.60	13.3.14	S	2 jars 1x bag	3	X	X	X	X	X	X	X	X	X	X	X		
2	VR-M-SS05-1.0	"	S	"	3	X	X	X	X	X	X	X	X	X	X	X		
3	VR-M-SS05-0.20	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
4	VR-C-SS06-0.15	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
5	VR-M-SS06-0.30	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
6	VR-M-SS06-0.65	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
7	VR-M-SS01-0.20	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
8	VR-M-SS01-0.40	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
9	VR-M-SS03-0.20	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
10	VR-M-SS03-0.45	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
11	VR-M-SS04-0.25	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
12	VR-M-SS04-0.50	"	S	"	11	X	X	X	X	X	X	X	X	X	X	X		
<b>TOTAL</b>																		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SFH = Sodium Hydroxide/Cg Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Salts; B = Unpreserved Bag.

1/2



DELAINE 21 Burma Road, Pootalla SA 5095  
 Ph: 08 8589 0850 E: delaine@alst.com.au  
 DERRISANE 32 Stroud Street, Sturtford QLD 4083  
 Ph: 07 3643 7222 E: sturtford@alst.com.au  
 DE JOSTONE 46 Callinan Drive, Cannon QLD 4680  
 Ph: 07 7517 5600 E: gjostone@alst.com.au

DMACKAY 78 Hopton Road, Mackay QLD 4740  
 Ph: 07 5846 0177 E: dmackay@alst.com.au  
 DANIEL JOHNE 24 Wealal Road, Strathmore VIC 3171  
 Ph: 03 8549 9600 E: samuel.melbourne@alst.com.au  
 DAN JOSE 27 Sydney Road, Madrigal NSW 2580  
 Ph: 02 6372 8735 E: mudge@alst.com.au

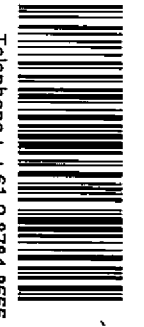
DUNOCASTLE 5 Roc  
 Ph: 02 4568 8400 E:  
 DUNOPIKA 419 Glen  
 Ph: 02 4423 2083 E:  
 DUFFERT 10 Hill Top  
 Ph: 08 6209 7855 E:

**Environmental Division**  
 Sydney  
 Work Order  
**ES1405672**

7289 Woodcock Road, Smithfield NSW 2161  
 553 E: samples@alst.com.au  
 E: 14-19 Centre Court, St Albans QLD 4818  
 500 E: central@alst.com.au  
 2162 92 Henry Street, Wagga Wagga NSW 2500  
 125 E: parkville@alst.com.au

CLIENT: ERM  
 OFFICE: PYRMONT  
 PROJECT: VALES POINT POWER STATION  
 ORDER NUMBER: 0237747  
 PROJECT MANAGER: JOHN EWING  
 CONTACT PH: 0401 776 290  
 CONTACT PH MOBILE: 0431724144  
 SAMPLER: JD  
 EDD FORMAT (or default):  
 COC emailed to ALST ( YES / NO)  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com

TURNAROUND REQUIREMENTS:  
 Standard TAT (last due date)  
 Non Standard or urgent TAT (last due date)  
 COC SEQUENCE NUMBER (circle)  
 COC: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7  
 RECEIVED BY: J. Devereux  
 DATE/TIME: 13.3.14 1830  
 RECEIVED BY: Kev  
 DATE/TIME: 19:00



VOL	NO	NA
YES	NO	NA

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)										Additional Information				
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste		Ultra Trace PAH	Ultra Trace Metals		
1	VR-M-SS05-0.60	13.3.14	S	2x jars 1x bag	3	X	X	X												
2	VR-M-SS05-1.0	11	S	11	3	X	X	X												
3	VR-M-SS05-0.20	11	S	11	4	X	X	X												
4	VR-C-SS06-0.15	11	S	11	11	X	X	X												
5	VR-M-SS06-0.30	11	S	11	11	X	X	X												
6	VR-M-SS06-0.65	11	S	11	11	X	X	X												
7	VR-M-SS01-0.20	11	S	11	11	X	X	X												
8	VR-M-SS01-0.40	11	S	11	11	X	X	X												
9	VR-M-SS03-0.20	11	S	11	11	X	X	X												
10	VR-M-SS03-0.45	11	S	11	11	X	X	X												
11	VR-M-SS04-0.25	11	S	11	11	X	X	X												
12	VR-M-SS04-0.50	11	S	11	11	X	X	X												
TOTAL																				

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speedation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Solids; B = Unpreserved Bag

1/2



# Certificate of Analysis

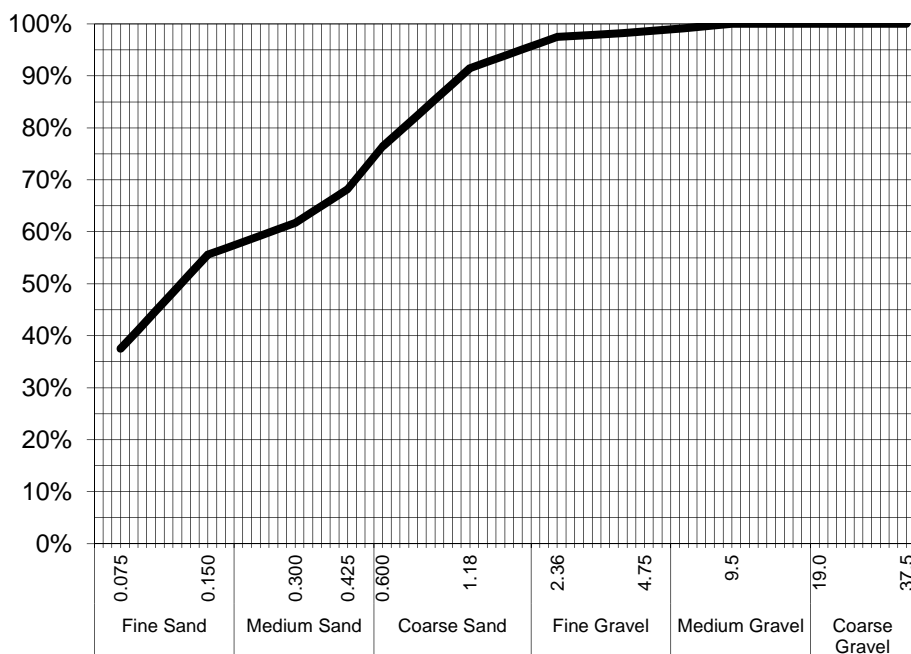
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
ph 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-002 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS05\_1.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	98%
1.18	92%
0.600	76%
0.425	68%
0.300	62%
0.150	56%
0.075	38%

Samples analysed as received.

## Sample Comments:

**Analysed:** 25-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

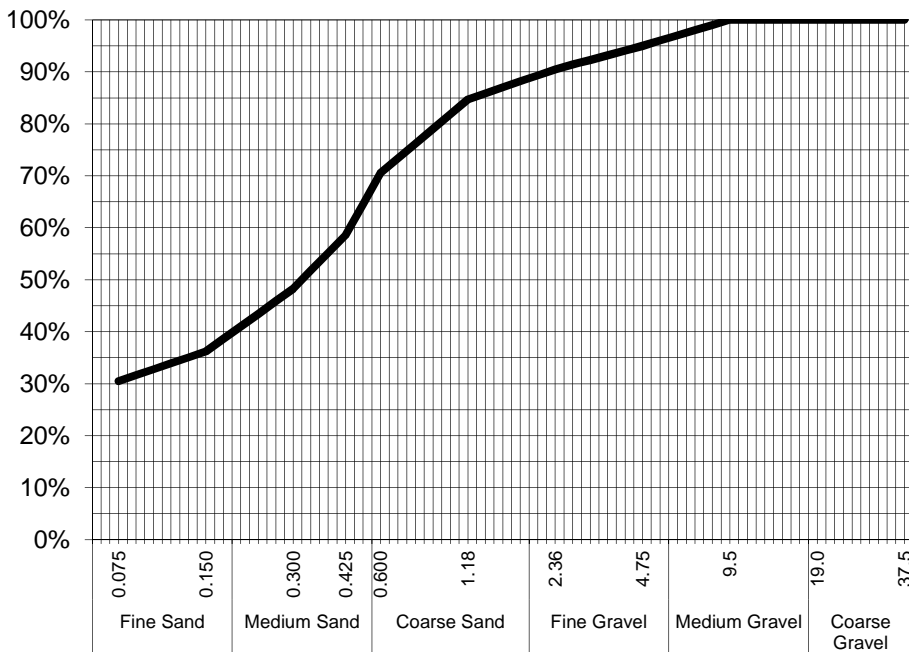
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-003 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS05\_2.0

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	95%
2.36	91%
1.18	85%
0.600	71%
0.425	59%
0.300	48%
0.150	36%
0.075	31%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 25-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

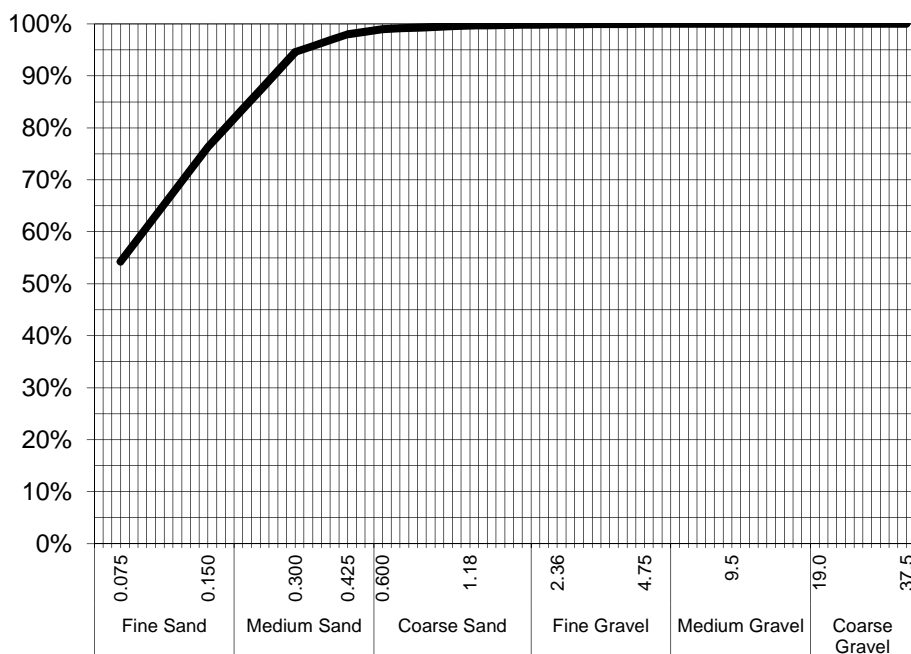
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-005 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS06\_0.30

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	99%
0.425	98%
0.300	95%
0.150	76%
0.075	54%

Samples analysed as received.

### Sample Comments:

**Analysed:** 25-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



# Certificate of Analysis

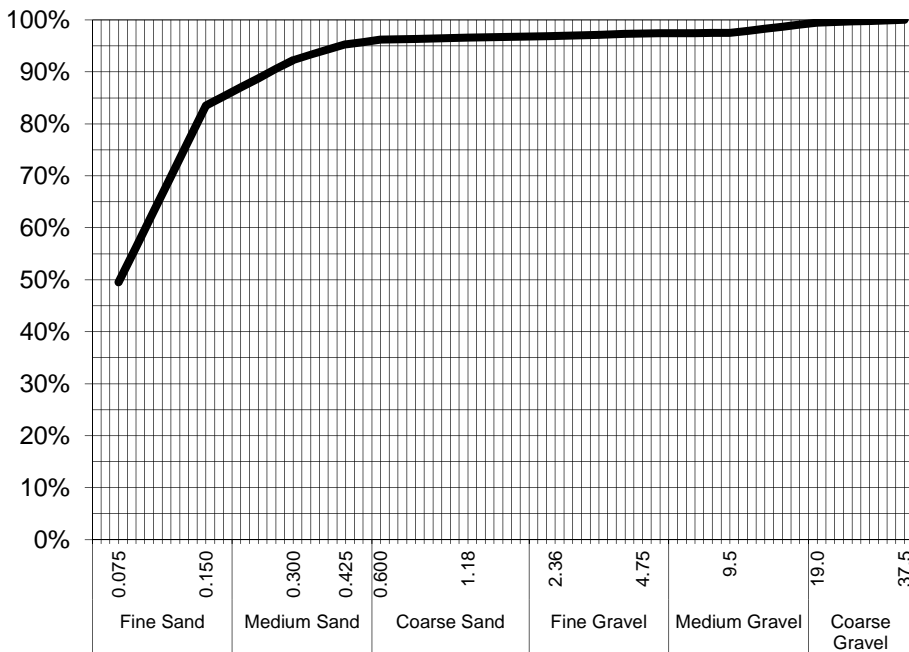
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-006 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS06\_0.65

## Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	100%
9.5	98%
4.75	97%
2.36	97%
1.18	97%
0.600	96%
0.425	95%
0.300	92%
0.150	84%
0.075	50%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Analysed:** 25-Mar-14

**Limit of Reporting:** 1%

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**





# Certificate of Analysis

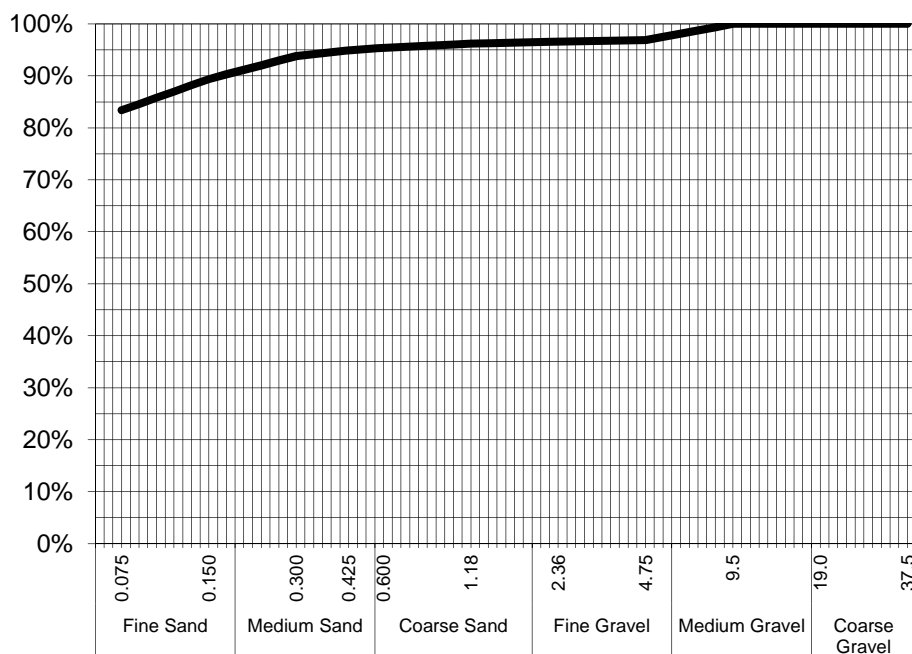
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-009 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS03\_0.20

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	97%
2.36	97%
1.18	96%
0.600	95%
0.425	95%
0.300	94%
0.150	89%
0.075	83%

Samples analysed as received.

## Sample Comments:

**Analysed:** 25-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**





# Certificate of Analysis

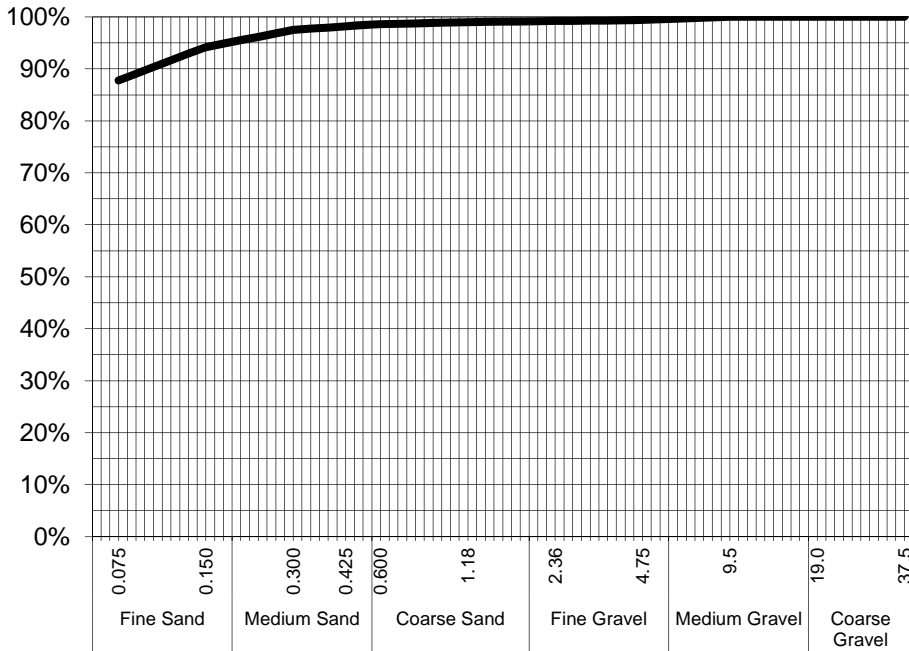
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-011 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS04\_0.25

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	99%
1.18	99%
0.600	99%
0.425	98%
0.300	98%
0.150	94%
0.075	88%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 25-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**





# Certificate of Analysis

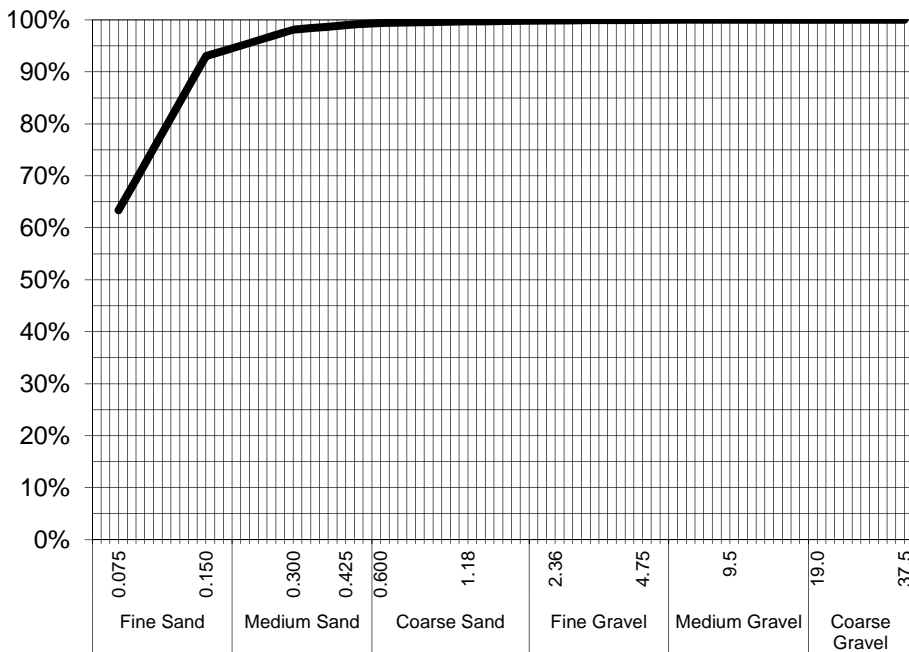
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-014 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS05\_0.55

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	99%
0.425	99%
0.300	98%
0.150	93%
0.075	63%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 25-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

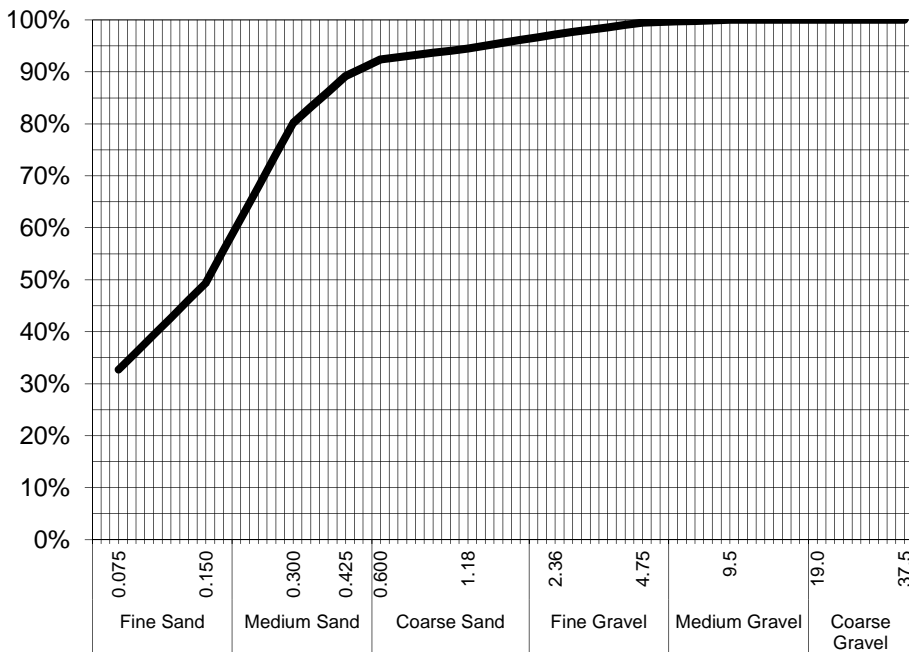
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-015 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS05\_0.80

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	97%
1.18	95%
0.600	92%
0.425	89%
0.300	80%
0.150	49%
0.075	33%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 25-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

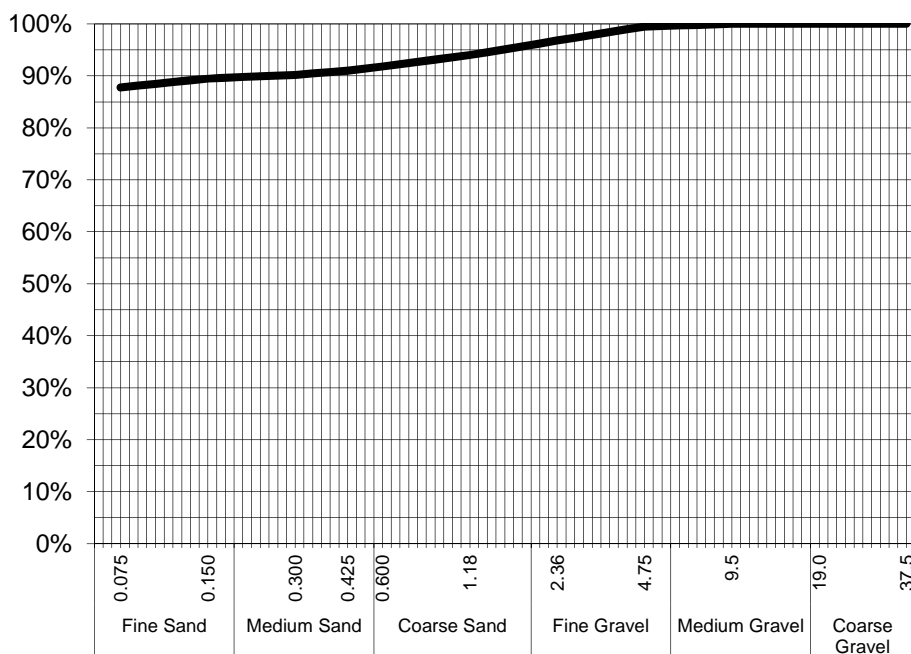
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-016 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS04\_0.20

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	97%
1.18	94%
0.600	92%
0.425	91%
0.300	90%
0.150	90%
0.075	88%

Samples analysed as received.

## Sample Comments:

**Analysed:** 25-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**





# Certificate of Analysis

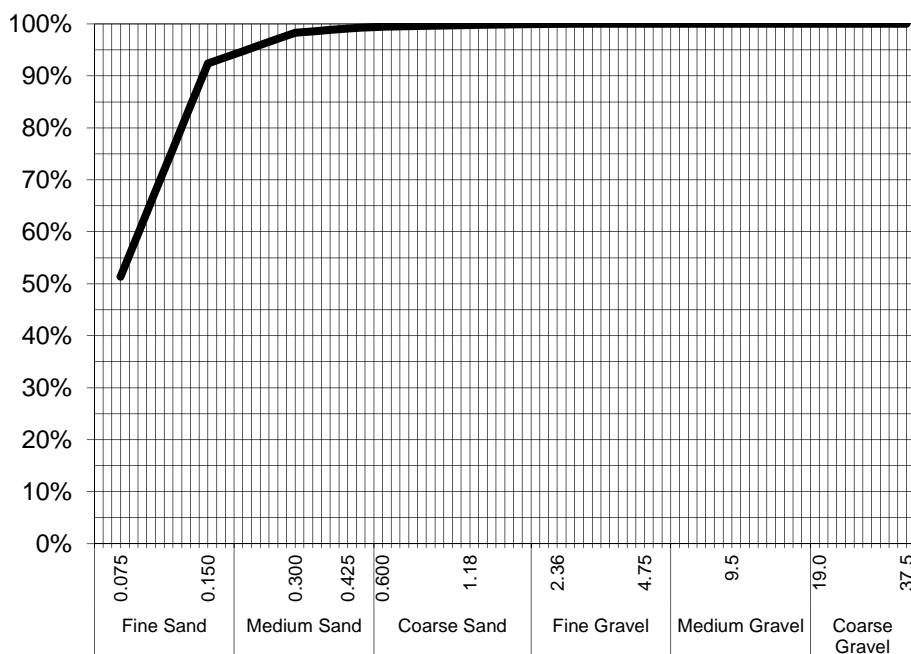
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 27-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405672-019 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** D05\_130314\_JD\_0.25

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	100%
0.600	100%
0.425	99%
0.300	98%
0.150	92%
0.075	51%

Samples analysed as received.

### Sample Comments:

**Analysed:** 25-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405740</b>	Page	: 1 of 8
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 7
Site	: ----	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS07_0.20	D02_140314_JD	VR_C_SS07_0.30	D01_140314_JD	TRIP SPIKE1
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405740-001	ES1405740-002	ES1405740-003	ES1405740-004	ES1405740-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	90	55	61	100	----
+150µm	----	1	%	84	48	47	99	----
+300µm	----	1	%	78	31	36	86	----
+425µm	----	1	%	64	20	26	68	----
+600µm	----	1	%	49	13	18	51	----
+1180µm	----	1	%	33	7	10	35	----
+2.36mm	----	1	%	22	4	4	25	----
+4.75mm	----	1	%	13	1	1	17	----
+9.5mm	----	1	%	2	<1	<1	7	----
+19.0mm	----	1	%	<1	<1	<1	<1	----
+37.5mm	----	1	%	<1	<1	<1	<1	----
+75.0mm	----	1	%	<1	<1	<1	<1	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	5.5	3.9	4.0	5.7	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	20.5	21.9	20.1	23.1	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	10	45	39	<1	----
Sand (>75 µm)	----	1	%	67	51	56	75	----
Gravel (>2mm)	----	1	%	22	4	4	25	----
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	<10	<10	<10	<10	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	<2	7	6	4	----
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	2	----
Copper	7440-50-8	5	mg/kg	<5	12	8	<5	----
Lead	7439-92-1	5	mg/kg	<5	<5	<5	8	----
Manganese	7439-96-5	5	mg/kg	46	13	10	30	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VR_C_SS07_0.20	D02_140314_JD	VR_C_SS07_0.30	D01_140314_JD	TRIP SPIKE1
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405740-001	ES1405740-002	ES1405740-003	ES1405740-004	ES1405740-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Nickel	7440-02-0	2	mg/kg	3	5	3	2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	8	16	14	19	----
Zinc	7440-66-6	5	mg/kg	30	18	11	55	----
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.45	0.09	0.08	0.48	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VR_C_SS07_0.20	D02_140314_JD	VR_C_SS07_0.30	D01_140314_JD	TRIP SPIKE1
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405740-001	ES1405740-002	ES1405740-003	ES1405740-004	ES1405740-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<b>0.3</b>
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>11.9</b>
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.3</b>
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>6.4</b>
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>2.6</b>
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>9.0</b>
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<b>22.5</b>
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	<10	<10	----
2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	<10	<10	----
7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	<10	<10	----
Acenaphthene	83-32-9	10	µg/kg	<10	<10	<10	<10	----
Acenaphthylene	208-96-8	10	µg/kg	<10	<10	<10	<10	----
Anthracene	120-12-7	10	µg/kg	<10	<10	<10	<10	----
Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	<10	<10	----
Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	<10	<10	----
Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	<10	<10	----
Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	<10	<10	----
Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	<10	<10	----
Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	<10	<10	----
Chrysene	218-01-9	10	µg/kg	<10	<10	<10	<10	----
Coronene	191-07-1	10	µg/kg	<10	<10	<10	<10	----
Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	<10	<10	----
Fluoranthene	206-44-0	10	µg/kg	<10	<10	<10	<10	----
Fluorene	86-73-7	10	µg/kg	<10	<10	<10	<10	----
Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	<10	<10	----
N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	<100	<100	----
Naphthalene	91-20-3	10	µg/kg	<10	<10	<10	<10	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VR_C_SS07_0.20	D02_140314_JD	VR_C_SS07_0.30	D01_140314_JD	TRIP SPIKE1
Client sampling date / time	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	ES1405740-001	ES1405740-002	ES1405740-003	ES1405740-004	ES1405740-005

Compound	CAS Number	LOR	Unit	ES1405740-001	ES1405740-002	ES1405740-003	ES1405740-004	ES1405740-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Perylene	198-55-0	10	µg/kg	<10	<10	<10	<10	----
Phenanthrene	85-01-8	10	µg/kg	<10	<10	<10	<10	----
Pyrene	129-00-0	10	µg/kg	<10	<10	<10	<10	----
^ Sum of PAHs	----	10	µg/kg	<10	<10	<10	<10	----
^ Benzo(a)pyrene TEQ (zero)	----	10	µg/kg	<10	<10	<10	<10	----
^ Benzo(a)pyrene TEQ (half LOR)	----	10	µg/kg	10	10	10	10	----
^ Benzo(a)pyrene TEQ (LOR)	----	10	µg/kg	20	20	20	20	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	81.6	84.4	91.2	76.4	----
2-Chlorophenol-D4	93951-73-6	0.1	%	72.0	70.9	79.7	80.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	85.9	86.2	88.9	85.0	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	75.0	75.1	79.7	81.2	----
Anthracene-d10	1719-06-8	0.1	%	104	106	109	102	----
4-Terphenyl-d14	1718-51-0	0.1	%	100	103	105	98.9	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.6	89.3	89.5	94.0	87.3
Toluene-D8	2037-26-5	0.1	%	91.3	82.6	87.5	88.6	85.8
4-Bromofluorobenzene	460-00-4	0.1	%	92.8	87.0	93.1	91.1	87.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	99.5	91.4	108	106	----
Anthracene-d10	1719-06-8	0.1	%	101	94.8	103	107	----
4-Terphenyl-d14	1718-51-0	0.1	%	124	115	134	123	----



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				TRIP BLANK9	TSC	---	---	---
				14-MAR-2014 15:00	14-MAR-2014 15:00	---	---	---
				ES1405740-006	ES1405740-007	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	10	mg/kg	<10	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.4	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	17.6	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.0	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	9.7	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	4.0	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	13.7	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	<0.2	33.7	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	79.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	98.8	91.4	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	97.4	90.4	---	---	---



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	26.9	131
Anthracene-d10	1719-06-8	35	139
4-Terphenyl-d14	1718-51-0	29.7	164

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405740</b>	Page	: 1 of 12
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 7
Order number	: 0237747	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Brisbane Acid Sulphate Soils
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
		Sydney Organics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3351323)</b>									
ES1405662-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.0	4.8	4.1	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3355526)</b>									
ES1405737-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.4	26.5	0.0	0% - 20%
ES1405742-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.6	23.3	1.3	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359156)</b>									
ES1405737-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	6	55.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	18	54.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
ES1405740-004	D01_140314_JD	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	2	41.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	6	34.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	30	24	20.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	19	9	73.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	55	39	33.6	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359156) - continued</b>											
ES1405740-004	D01_140314_JD	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3359157)</b>											
ES1405737-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1405740-004	D01_140314_JD	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3349606)</b>											
ES1405737-008	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.26	0.18	37.2	0% - 50%		
ES1405742-006	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.27	0.27	0.0	0% - 50%		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3345529)</b>											
ES1405736-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1405742-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3345528)</b>											
ES1405736-001	Anonymous			EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit		
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit		
ES1405742-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	230	230	0.0	No Limit		
		EP071: C29 - C36 Fraction	----	100	mg/kg	120	110	0.0	No Limit		
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405742-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3345528)</b>										
ES1405736-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405742-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	310	310	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405742-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
			95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405742-004	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346718)</b>										
ES1405740-001	VR_C_SS07_0.20	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Anthracene	120-12-7	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	0.0	No Limit	
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346718) - continued</b>									
ES1405740-001	VR_C_SS07_0.20	EP132: Chrysene	218-01-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Naphthalene	91-20-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Phenanthrene	85-01-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Pyrene	129-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit
ES1405742-007	Anonymous	EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthene	83-32-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Anthracene	120-12-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Chrysene	218-01-9	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Coronene	191-07-1	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluoranthene	206-44-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Fluorene	86-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Naphthalene	91-20-3	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Perylene	198-55-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Phenanthrene	85-01-8	10	µg/kg	<10	<10	0.0	No Limit
		EP132: Pyrene	129-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	<100	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	100	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	102	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.0	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.9	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	98.6	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	105	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	102	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	108	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	102	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	91.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	107	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	72.2	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.6	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3349606)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	29.99 %	104	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	101	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	96.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	102	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	98.7	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	97.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	102	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	95.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	92.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	32.6	10	57	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528) - continued</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	90.5	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	95.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.5	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346716)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.8	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	95.4	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	97.4	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346716)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	79.3	68.4	128	
<b>EP080: BTEXN (QCLot: 3346716)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	86.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.6	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	84.5	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.6	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	62	138	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346718)</b>									
EP132: 3-Methylcholanthrene	56-49-5	10	µg/kg	<10	100 µg/kg	72.7	36	120	
EP132: 2-Methylnaphthalene	91-57-6	10	µg/kg	<10	100 µg/kg	107	51	135	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	10	µg/kg	<10	100 µg/kg	80.7	14.9	157	
EP132: Acenaphthene	83-32-9	10	µg/kg	<10	100 µg/kg	106	57	125	
EP132: Acenaphthylene	208-96-8	10	µg/kg	<10	100 µg/kg	94.1	48	132	
EP132: Anthracene	120-12-7	10	µg/kg	<10	100 µg/kg	95.7	50	114	
EP132: Benz(a)anthracene	56-55-3	10	µg/kg	<10	100 µg/kg	108	66	124	
EP132: Benzo(a)pyrene	50-32-8	10	µg/kg	<10	100 µg/kg	100	43	125	
EP132: Benzo(b)fluoranthene	205-99-2	10	µg/kg	<10	100 µg/kg	97.1	64	130	
EP132: Benzo(e)pyrene	192-97-2	10	µg/kg	<10	100 µg/kg	95.4	55	141	
EP132: Benzo(g,h,i)perylene	191-24-2	10	µg/kg	<10	100 µg/kg	50.8	46	134	
EP132: Benzo(k)fluoranthene	207-08-9	10	µg/kg	<10	100 µg/kg	117	65	129	
EP132: Chrysene	218-01-9	10	µg/kg	<10	100 µg/kg	119	69	129	
EP132: Coronene	191-07-1	10	µg/kg	<10	100 µg/kg	92.0	26.9	149	
EP132: Dibenz(a,h)anthracene	53-70-3	10	µg/kg	<10	100 µg/kg	64.6	50	134	
EP132: Fluoranthene	206-44-0	10	µg/kg	<10	100 µg/kg	113	68	130	
EP132: Fluorene	86-73-7	10	µg/kg	<10	100 µg/kg	110	57	131	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346718) - continued</b>								
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	10	µg/kg	<10	100 µg/kg	54.9	46	138
EP132: N-2-Fluorenyl Acetamide	53-96-3	100	µg/kg	<100	100 µg/kg	63.2	50	138
EP132: Naphthalene	91-20-3	10	µg/kg	<10	100 µg/kg	77.1	50	132
EP132: Perylene	198-55-0	10	µg/kg	<10	100 µg/kg	100	48	132
EP132: Phenanthrene	85-01-8	10	µg/kg	<10	100 µg/kg	91.1	67	127
EP132: Pyrene	129-00-0	10	µg/kg	<10	100 µg/kg	113	66	130

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>							
ES1405737-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	105	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>							
ES1405737-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>							
ES1405736-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	69.7	20	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>							
ES1405736-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346716)</b>							
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C9 Fraction	----	32.5 mg/kg	75.7	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>								
ES1405736-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.8	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.3	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346716)</b>								
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	70.0	70	130	
<b>EP080: BTEXN (QCLot: 3346716)</b>								
ES1405740-001	VR_C_SS07_0.20	EP080: Benzene	71-43-2	2.5 mg/kg	71.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	73.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.7	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	77.8	70	130		
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346718)</b>								
ES1405740-001	VR_C_SS07_0.20	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	94.5	15	119	
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	95.6	49	129	
		EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	112	14.9	157	
		EP132: Acenaphthene	83-32-9	100 µg/kg	105	57	125	
		EP132: Acenaphthylene	208-96-8	100 µg/kg	102	37	123	
		EP132: Anthracene	120-12-7	100 µg/kg	90.6	50	114	
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	109	66	124	
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	102	43	125	
		EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	91.5	64	130	
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	107	43	145	
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	117	46	134	
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	98.4	65	129	
		EP132: Chrysene	218-01-9	100 µg/kg	99.6	69	129	
		EP132: Coronene	191-07-1	100 µg/kg	95.2	26.9	149	
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	110	50	134	
		EP132: Fluoranthene	206-44-0	100 µg/kg	107	68	130	
		EP132: Fluorene	86-73-7	100 µg/kg	111	57	131	
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	116	46	138	
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	97.9	50	138	
		EP132: Naphthalene	91-20-3	100 µg/kg	57.9	48	126	
		EP132: Perylene	198-55-0	100 µg/kg	107	37	125	
		EP132: Phenanthrene	85-01-8	100 µg/kg	118	67	127	
		EP132: Pyrene	129-00-0	100 µg/kg	112	66	130	





### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>										
ES1405736-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>										
ES1405736-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.8	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.2	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.3	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>										
ES1405736-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.8	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.0	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.1	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	69.7	----	20	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C9 Fraction	----	32.5 mg/kg	75.7	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	70.0	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3346716)</b>										
ES1405740-001	VR_C_SS07_0.20	EP080: Benzene	71-43-2	2.5 mg/kg	71.2	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	74.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	73.0	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	77.8	----	70	130	----	----
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346718)</b>										
ES1405740-001	VR_C_SS07_0.20	EP132: 3-Methylcholanthrene	56-49-5	100 µg/kg	94.5	----	15	119	----	----
		EP132: 2-Methylnaphthalene	91-57-6	100 µg/kg	95.6	----	49	129	----	----
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	100 µg/kg	112	----	14.9	157	----	----
		EP132: Acenaphthene	83-32-9	100 µg/kg	105	----	57	125	----	----
		EP132: Acenaphthylene	208-96-8	100 µg/kg	102	----	37	123	----	----
		EP132: Anthracene	120-12-7	100 µg/kg	90.6	----	50	114	----	----
		EP132: Benz(a)anthracene	56-55-3	100 µg/kg	109	----	66	124	----	----
		EP132: Benzo(a)pyrene	50-32-8	100 µg/kg	102	----	43	125	----	----



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346718) - continued</b>										
ES1405740-001	VR_C_SS07_0.20	EP132: Benzo(b)fluoranthene	205-99-2	100 µg/kg	91.5	----	64	130	----	----
		EP132: Benzo(e)pyrene	192-97-2	100 µg/kg	107	----	43	145	----	----
		EP132: Benzo(g,h,i)perylene	191-24-2	100 µg/kg	117	----	46	134	----	----
		EP132: Benzo(k)fluoranthene	207-08-9	100 µg/kg	98.4	----	65	129	----	----
		EP132: Chrysene	218-01-9	100 µg/kg	99.6	----	69	129	----	----
		EP132: Coronene	191-07-1	100 µg/kg	95.2	----	26.9	149	----	----
		EP132: Dibenz(a,h)anthracene	53-70-3	100 µg/kg	110	----	50	134	----	----
		EP132: Fluoranthene	206-44-0	100 µg/kg	107	----	68	130	----	----
		EP132: Fluorene	86-73-7	100 µg/kg	111	----	57	131	----	----
		EP132: Indeno(1,2,3-cd)pyrene	193-39-5	100 µg/kg	116	----	46	138	----	----
		EP132: N-2-Fluorenyl Acetamide	53-96-3	100 µg/kg	97.9	----	50	138	----	----
		EP132: Naphthalene	91-20-3	100 µg/kg	57.9	----	48	126	----	----
		EP132: Perylene	198-55-0	100 µg/kg	107	----	37	125	----	----
		EP132: Phenanthrene	85-01-8	100 µg/kg	118	----	67	127	----	----
		EP132: Pyrene	129-00-0	100 µg/kg	112	----	66	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>										
ES1405737-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	105	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>										
ES1405737-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405740</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 7
Order number	: 0237747	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	21-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	----	----	----	24-MAR-2014	28-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	---	10-SEP-2014	----	25-MAR-2014	20-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	---	10-SEP-2014	----	25-MAR-2014	20-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	26-MAR-2014	10-SEP-2014	✓	26-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	26-MAR-2014	11-APR-2014	✓	27-MAR-2014	11-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	20-MAR-2014	11-APR-2014	✓	22-MAR-2014	11-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS07_0.20, VR_C_SS07_0.30, TRIP SPIKE1, TSC	D02_140314_JD, D01_140314_JD, TRIP BLANK9,	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	25-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VR_C_SS07_0.20, VR_C_SS07_0.30, TRIP BLANK9	D02_140314_JD, D01_140314_JD,	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	25-MAR-2014	28-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP132)</b> VR_C_SS07_0.20, VR_C_SS07_0.30,	D02_140314_JD, D01_140314_JD	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	24-MAR-2014	29-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	SOIL	USEPA 8270 GCMS Capillary column, SIM mode.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids/ Acetylation	ORG17A-AC	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis.



Page : 6 of 7  
Work Order : ES1405740  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405740**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : SYMPHONY DELTANORTH</b>  <b>Address : GRND FLOOR, 33 SAUNDERS STREET</b>  <b>PYRMONT NSW AUSTRALIA 2009</b></p> <p><b>E-mail : symphony.deltanorth@erm.com</b>  <b>Telephone : +61 02 8584 8888</b>  <b>Facsimile : +61 02 8584 8800</b></p> <p><b>Project : VALES POINT POWER STATION</b>  <b>Order number : 0237747</b>  <b>C-O-C number : ----</b>  <b>Site : ----</b>  <b>Sampler : JD</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b>  <b>Address : 277-289 Woodpark Road Smithfield</b>  <b>NSW Australia 2164</b></p> <p><b>E-mail : Barbara.Hanna@alsglobal.com</b>  <b>Telephone : +61 2 8784 8555</b>  <b>Facsimile : +61 2 8784 8555</b></p> <p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 17-MAR-2014</b></p> <p><b>Client Requested Due Date : 27-MAR-2014</b></p>	<p><b>Issue Date : 18-MAR-2014 09:42</b></p> <p><b>Scheduled Reporting Date : <b>27-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.1°C - Ice present</b></p> <p><b>No. of samples received : 7</b></p> <p><b>No. of samples analysed : 7</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Samples T01\_140314\_JD and T02\_140314\_JD will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC ) in Soil	SOIL - EP07s SIM Phenols only	SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN
ES1405740-001	14-MAR-2014 15:00	VR_C_SS07_0.20	✓	✓	✓	✓		✓	✓	✓
ES1405740-002	14-MAR-2014 15:00	D02_140314_JD	✓	✓	✓	✓		✓	✓	✓
ES1405740-003	14-MAR-2014 15:00	VR_C_SS07_0.30	✓	✓	✓	✓		✓	✓	✓
ES1405740-004	14-MAR-2014 15:00	D01_140314_JD	✓	✓	✓	✓		✓	✓	✓
ES1405740-005	14-MAR-2014 15:00	TRIP SPIKE1					✓			
ES1405740-007	14-MAR-2014 15:00	TSC					✓			

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES1405740-006	14-MAR-2014 15:00	TRIP BLANK9	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1405740</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: SYMPHONY DELTANORTH	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: symphony.deltanorth@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

**Dates**

<b>Date Samples Received</b>	: 17-MAR-2014	<b>Issue Date</b>	: 18-MAR-2014 15:41
<b>Client Requested Due Date</b>	: 27-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>27-MAR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 4.1°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 7
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 7

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Samples T01\_140314\_JD and T02\_140314\_JD will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl.
ES1405740-001	14-MAR-2014 15:00	VR_C_SS07_0.20	✓	✓	✓	✓	✓		✓	✓
ES1405740-002	14-MAR-2014 15:00	D02_140314_JD	✓	✓	✓	✓	✓		✓	✓
ES1405740-003	14-MAR-2014 15:00	VR_C_SS07_0.30	✓	✓	✓	✓	✓		✓	✓
ES1405740-004	14-MAR-2014 15:00	D01_140314_JD	✓	✓	✓	✓	✓		✓	✓
ES1405740-005	14-MAR-2014 15:00	TRIP SPIKE1						✓		
ES1405740-007	14-MAR-2014 15:00	TSC						✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture
ES1405740-001	14-MAR-2014 15:00	VR_C_SS07_0.20	✓	
ES1405740-002	14-MAR-2014 15:00	D02_140314_JD	✓	
ES1405740-003	14-MAR-2014 15:00	VR_C_SS07_0.30	✓	
ES1405740-004	14-MAR-2014 15:00	D01_140314_JD	✓	
ES1405740-006	14-MAR-2014 15:00	TRIP BLANK9		✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



CHAIN OF CUSTODY

DADELAIDE 21 Burrum Road, Porepunka SA 5095  
Ph: 08 6350 0650 E: aled@als.com.au

DIMAGAY 78 Harbour Road, Mackay QLD 4740  
Ph: 07 4644 0177 E: mackay@als.com.au

DNEWCASTLE 8 Rose Gum Road, Warabook NSW 2304  
Ph: 02 6556 9459 E: samples.newcastle@als.com.au

DISYDNEY 271-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 6781 8550 E: samples.sydney@als.com.au

DROSWELL 14-15 Deernat Court, Boneo QLD 4010  
Ph: 07 4796 3000 E: boneville.melbourne@als.com.au

DHOWRA 4/13 Geary Place, North Newry NSW 2641  
Ph: 02 4423 2050 E: howra@als.com.au

DPERTH 10 Hill Way, Malaga WA 6000  
Ph: 08 9209 7655 E: samples.perth@als.com.au

DWOLLONGONG 99 Kenney Street, Wollongong NSW 2500  
Ph: 02 4228 3125 E: portkembla@als.com.au

ALS Laboratory: please tick →

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

PROJECT MANAGER: JOHN EWING

SAMPLER: JD

COC emailed to ALS? ( YES / NO)

Email Reports to (will default to PM if no other addresses are listed): symphony.dellanorh@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.dellanorh@erm.com

TURNAROUND REQUIREMENTS: Standard TAT (List due date):

Standard TAT may be longer for some tests e.g. Ultra Trace Organics

ALS QUOTE NO.:

CONTACT PH: 0401 776 230

SAMPLER MOBILE:

EDD FORMAT (or default):

RECEIVED BY: J. Devereux

DATE/TIME: 14.3.14 18:00

RELINQUISHED BY: Ravi

DATE/TIME: 17/3 19:00

FOR LABORATORY USE ONLY (Circle)

COCC SEQUENCE NUMBER (Circle)

COCC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS (WATER & SOLID) (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
---------	--	-----------------------	---	------------------------

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	7 PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFO3/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
1	VR-C-SS07-0-20	14.3.14	S	2 Jars 1x Bag	3	X	X	X						X		X	X	
2	002-140314-JO	14.3.14	S	"		X	X	X						X		X	X	
3	FDL-140314-30		S	"		X	X	X						X		X	X	
4	VR-C-SS07-0-30	14.3.14	S	"		X	X	X						X		X	X	
	F02-140314-30		S	"		X	X	X						X		X	X	
5	D01-14 0314 JO	14.3.14	S	"		X	X	X						X		X	X	
	TRIP spike 1	14.3.14	S	1 jar														BTEX ONLY
6	TRIP Blank 9	14.3.14	S	1 jar														BTEX ONLY
7	TSC		S															

Environmental Division  
Sydney  
Work Order  
**ES1405740**



Telephone: +61-2-6784 8555

TOTAL

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Ca Preserved; S = Sodium Hydroxide Preserved Plastic; AG  
V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl prese  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

# Certificate of Analysis

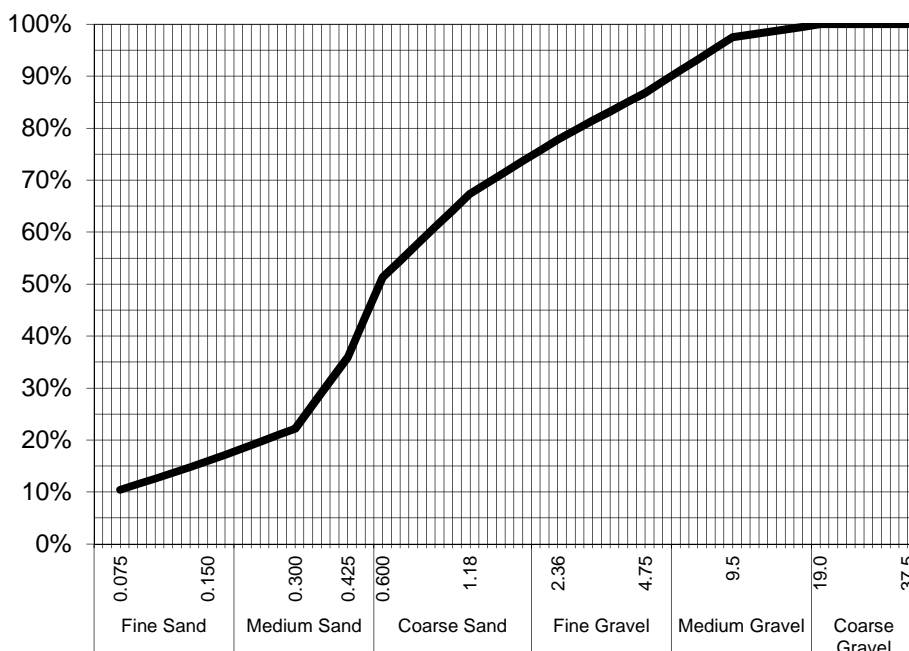
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 17-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405740-001 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_C\_SS07\_0.20

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	98%
4.75	87%
2.36	78%
1.18	67%
0.600	51%
0.425	36%
0.300	22%
0.150	16%
0.075	10%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



# Certificate of Analysis

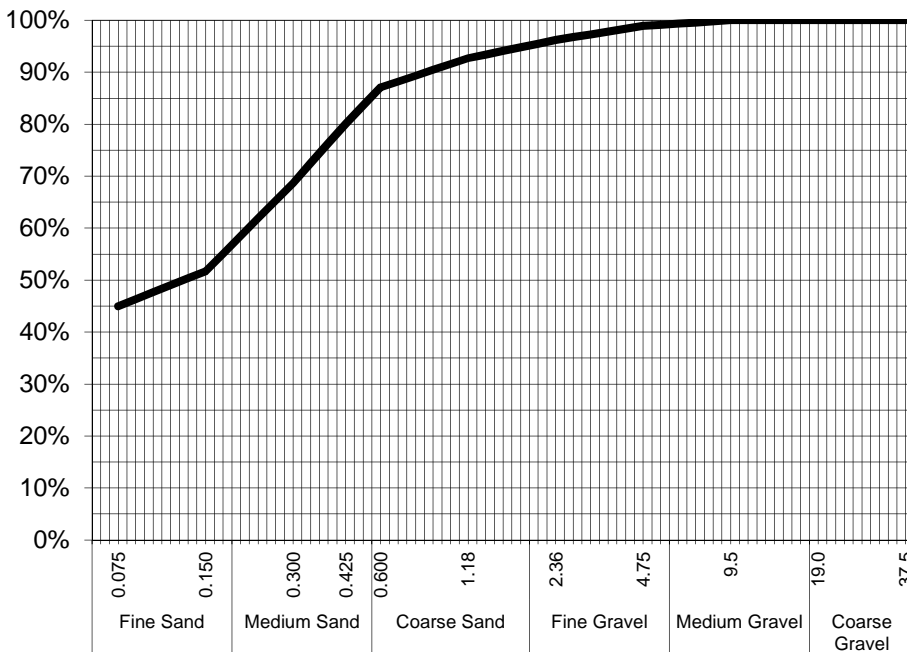
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 17-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405740-002 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** D02\_140314\_JD

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	96%
1.18	93%
0.600	87%
0.425	80%
0.300	69%
0.150	52%
0.075	45%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

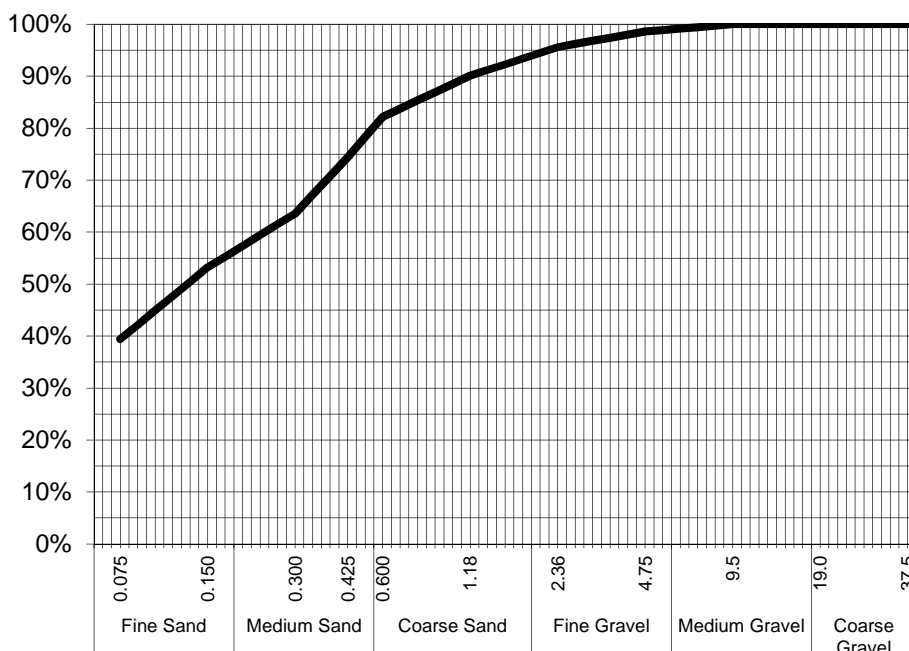
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 17-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405740-003 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VR\_C\_SS07\_0.30

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	96%
1.18	90%
0.600	82%
0.425	74%
0.300	64%
0.150	53%
0.075	39%

Samples analysed as received.

### Sample Comments:

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



# Certificate of Analysis

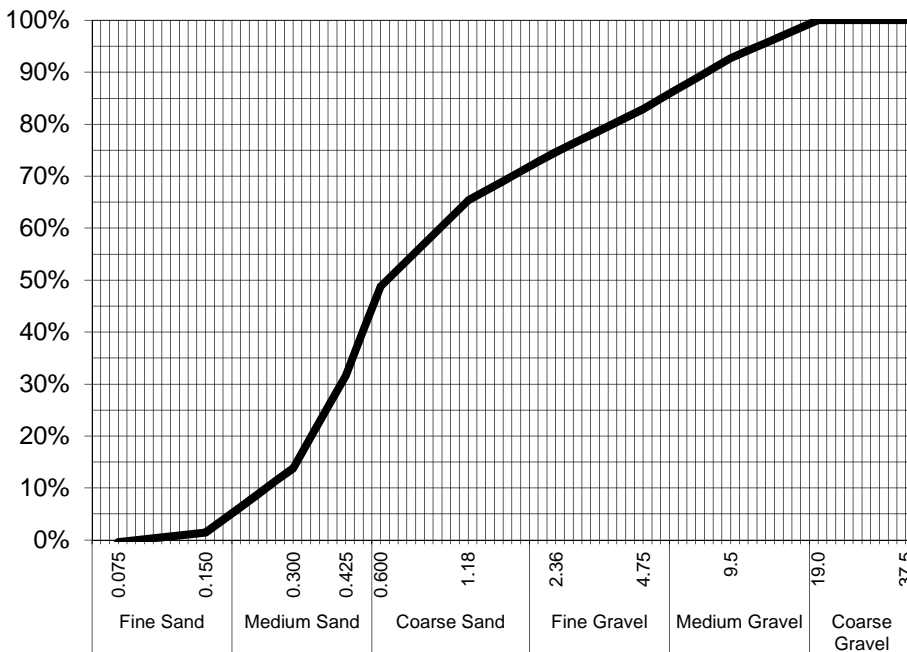
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 17-Mar-2014  
**ADDRESS:** Grnd Floor, 33 Saunders Street      **REPORT NO:** ES1405740-004 / PSD  
 Pyrmont, NSW Australia 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** D01\_140314\_JD

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	93%
4.75	83%
2.36	75%
1.18	65%
0.600	49%
0.425	32%
0.300	14%
0.150	1%
0.075	0%

*Samples analysed as received.*

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and gravel

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



Please forward to ENVIRO LABS.



**CHAIN OF CUSTODY**  
ALS Laboratory:  
please tick →

JADELAIDE 21 Burma Road Porocak SA 5095  
Ph. 08 8359 0890 E. adelaid@alsglobal.com  
LBRISBANE 32 Shand Street Stafford QLD 4063  
Ph. 07 3243 7222 E. samples.brisbane@alsglobal.com  
LGLADSTONE 46 Callomon Drive Clinton QLD 4680  
Ph. 07 7471 5900 E. gladstone@alsglobal.com

LIMACKAY 78 Harbour Road Mackay QLD 4740  
Ph. 07 4944 0177 E. mackay@alsglobal.com  
LIMELBOURNE 24 Westall Road Springvale VIC 3171  
Ph. 03 8549 9600 E. samples.melbourne@alsglobal.com  
LIMILDURIE 27 S. Frey Road Muldree NSW 2850  
Ph. 02 6372 6739 E. muldree@alsglobal.com

LJNEWCASTLES Rose Gum Road Warabrook NSW 2304  
Ph. 02 4666 9433 E. samples.newcastle@alsglobal.com  
LJNOWRA 4/13 Cheery Place North Nowra NSW 2541  
Ph. 024423 2063 E. nowra@alsglobal.com  
LJPERTH 10 Hot Way Malaga WA 6090  
Ph. 08 9209 7855 E. samples.perth@alsglobal.com

LJSYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph. 02 8784 8555 E. samples.sydney@alsglobal.com  
LJTOWNSVILLE 14-15 Deanna Court Bohle QLD 4818  
Ph. 07 4756 0600 E. townsville.environmental@alsglobal.com  
LJWOLLONGONG 99 Kenny Street Wollongong NSW 2500  
Ph. 02 4225 3125 E. portkenbla@alsglobal.com

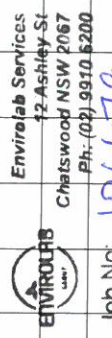
**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** JD  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:**  
**EDD FORMAT (or default):**  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
ALS QUOTE NO.:

**FOR LABORATORY USE ONLY (Circle)**  
Custody Seal Intact? Yes No N/A  
Free ice / frozen ice bricks present upon receipt? Yes No N/A  
Random Sample Temperature on Receipt: °C

**RELINQUISHED BY:** J. Devereux  
**DATE/TIME:** 14-3-14 1745  
**RECEIVED BY:** [Signature]  
**DATE/TIME:** 18/3 2:16

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to codes below)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)	Additional Information
1	T01-140314-J0	14.3.14	S	2x jars 1x bag		13 METALS (S-3) + B, Mo, Tl, Se X X 8 METALS (S-2) X X TOTAL CONTAINERS S	Comments on likely contaminant levels, dilutions or samples requiring specific OC analysis etc.
2	T02-140314-J0	14.3.14	S	2x jars 1x bag		13 METALS (S-3) + B, Mo, Tl, Se X X 8 METALS (S-2) X X TOTAL CONTAINERS S	
			S			PH/CEC	
			S			PFOS/PFOA	
			S			PCB	
			S			VOC	
			S			ASBESTOS	
			S			TPH/BTEX/PAH/ PHENOLS (S-24)	
			S			EC Saturated Paste	
			S			Ultra Trace PAH	
			S			Ultra Trace Metals	
			S			PSD sieve / TOC Leco	



EnviroLab Services  
12 Ashby St  
Chatswood NSW 2067  
Ph: (02) 9910 5200  
Job No: 106679

Date Received: 18/3  
Time Received: 12:40  
Received by: [Signature]  
Temp: Cool/Ambient  
Cooling: Icepack  
Security: Intact/Broken/None

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag



**CERTIFICATE OF ANALYSIS**

**106679**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	2 soils
Date samples received / completed instructions received	18/03/14 / 18/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 25/03/14 / 1/04/14

Date of Preliminary Report:

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		106679-1	106679-2
Our Reference:	UNITS		
Your Reference	-----	T01_140314_	T02_140314_
		JD	JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date extracted	-	21/03/2014	21/03/2014
Date analysed	-	22/03/2014	22/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	82	77

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_	T02_140314_
		JD	JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date extracted	-	21/03/2014	21/03/2014
Date analysed	-	24/03/2014	24/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100
Surrogate o-Terphenyl	%	95	92

PAHs in Soil Our Reference: Your Reference	UNITS -----	106679-1 T01_140314_ JD	106679-2 T02_140314_ JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date extracted	-	21/03/2014	21/03/2014
Date analysed	-	21/03/2014	21/03/2014
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	101

Total Phenolics in Soil			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_	T02_140314_
		JD	JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date extracted	-	20/03/2014	20/03/2014
Date analysed	-	20/03/2014	20/03/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5

Acid Extractable metals in soil			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_	T02_140314_
		JD	JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date digested	-	21/03/2014	21/03/2014
Date analysed	-	21/03/2014	21/03/2014
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	3	6
Copper	mg/kg	4	9
Lead	mg/kg	6	5
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	3	4
Zinc	mg/kg	60	31
Boron	mg/kg	<3	<3
Barium	mg/kg	8	8
Beryllium	mg/kg	<1	<1
Cobalt	mg/kg	2	1
Manganese	mg/kg	48	21
Molybdenum	mg/kg	<1	<1
Selenium	mg/kg	<2	<2
Thallium	mg/kg	<2	<2
Vanadium	mg/kg	7	13

Moisture			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_	T02_140314_
		JD	JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date prepared	-	21/03/2014	21/03/2014
Date analysed	-	24/03/2014	24/03/2014
Moisture	%	18	22



Miscellaneous Inorg - soil			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_ JD	T02_140314_ JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Date prepared	-	19/03/2014	19/03/2014
Date analysed	-	19/03/2014	19/03/2014
Total Organic Carbon (Combustion)	mg/kg	1,500	960

Particle Size Distribution in Soils			
Our Reference:	UNITS	106679-1	106679-2
Your Reference	-----	T01_140314_ JD	T02_140314_ JD
Date Sampled	-----	14/03/2014	14/03/2014
Type of sample		soil	soil
Particle Size Analysis	%	#	#

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Ext-062	Analysed by East West Enviroag

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Date analysed	-			22/03/2014	[NT]	[NT]	LCS-1	22/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	86%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	86%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	87%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	87%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	84%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	87%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	83%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	95	[NT]	[NT]	LCS-1	86%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Date analysed	-			24/03/2014	[NT]	[NT]	LCS-1	24/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	71%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	77%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	101%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	71%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	77%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	101%
Surrogate o-Terphenyl	%		Org-003	92	[NT]	[NT]	LCS-1	78%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	102%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	95%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	89%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	105	[NT]	[NT]	LCS-1	103%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	90%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			21/03/2014	[NT]	[NT]	LCS-7	21/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-7	21/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-7	96%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-7	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	99%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	97%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	97%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-7	103%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	99%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	99%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Boron	mg/kg	3	Metals-020 ICP-AES	<3	[NT]	[NT]	LCS-7	91%
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	101%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	96%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	99%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	99%
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	94%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-7	90%
Thallium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-7	91%
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Total Organic Carbon (Combustion)	mg/kg	200	Ext-020	<200	[NT]	[NT]	LCS-1	93%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Particle Size Distribution in Soils								
Particle Size Analysis	%	0.01	Ext-062	<0.01				

**Report Comments:**

TOC analysed by NMI. Report No. RN1014866.

Particle size analysed by EastWest, report no EW140278.

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike:** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample):** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.





**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106679**

Date received:

**18/03/14**

Date results expected to be reported:

**25/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	2 soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	16.2
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1404115</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V2)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: CM		

#### Dates

Date Samples Received	: 27-FEB-2014	Issue Date	: 28-FEB-2014 11:23
Client Requested Due Date	: 10-MAR-2014	Scheduled Reporting Date	: <b>10-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.6° C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 28
Security Seal	: Intact.	No. of samples analysed	: 14

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample VO\_MW10\_0.1 not received by ALS Sydney.**
- **Received extra sample VO\_MW10\_0.2 (2 soil bags and 1 soil jar) from which 1 bag and jar has brown soil and 1 bag has black soil, placed on hold please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1404115-001	26-FEB-2014 15:00	VO_MW07_0.1		✓
ES1404115-002	26-FEB-2014 15:00	VO_MW07_1.0		✓
ES1404115-003	26-FEB-2014 15:00	VO_MW20_0.1		✓
ES1404115-004	26-FEB-2014 15:00	VO_MW20_1.5		✓
ES1404115-005	26-FEB-2014 15:00	VO_MW09_0.1		✓
ES1404115-006	26-FEB-2014 15:00	VO_MW09_0.5		✓
ES1404115-007	25-FEB-2014 15:00	T.BLK	✓	
ES1404115-008	25-FEB-2014 15:00	T.Sp	✓	
ES1404115-009	25-FEB-2014 15:00	TSC	✓	
ES1404115-011	26-FEB-2014 15:00	VO_MW10_1.0		✓
ES1404115-012	26-FEB-2014 15:00	VO_MW11_0.1		✓
ES1404115-013	26-FEB-2014 15:00	VO_MW11_1.5		✓
ES1404115-014	26-FEB-2014 15:00	VU_MW20_0.1		✓
ES1404115-015	26-FEB-2014 15:00	VU_MW20_0.5		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Attachment - Report ( SUBCO ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email [au.accounts@erm.com](mailto:au.accounts@erm.com)

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1404115</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 27-FEB-2014
C-O-C number	: ----	Issue Date	: 10-MAR-2014
Sampler	: CM	No. of samples received	: 27
Site	: ----	No. of samples analysed	: 15
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	78	----	----	----	----
+150µm	----	1	%	58	----	----	----	----
+300µm	----	1	%	34	----	----	----	----
+425µm	----	1	%	18	----	----	----	----
+600µm	----	1	%	8	----	----	----	----
+1180µm	----	1	%	2	----	----	----	----
+2.36mm	----	1	%	2	----	----	----	----
+4.75mm	----	1	%	<1	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.4	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	4.7	10.9	3.6	12.8	4.3
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	22	----	----	----	----
Sand (>75 µm)	----	1	%	76	----	----	----	----
Gravel (>2mm)	----	1	%	2	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	378	----	602	----	417
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.378	----	0.602	----	0.417
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.2	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	0.1	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	0.4	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	<5	<5
Barium	7440-39-3	10	mg/kg	<10	<10	<10	<10	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	17	<2	9	<2
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	6	<5	<5
Manganese	7439-96-5	5	mg/kg	11	<5	12	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	<5	46	9	26	6
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	1.06	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	117	98.3	103	108	103
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	95.2	96.4	104	95.7
2,4,6-Tribromophenol	118-79-6	0.1	%	88.4	89.5	95.7	87.9	91.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.2	89.7	91.2	89.3	89.3
Anthracene-d10	1719-06-8	0.1	%	84.1	79.3	80.1	77.8	78.9
4-Terphenyl-d14	1718-51-0	0.1	%	81.3	78.5	79.5	80.2	79.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.0	90.8	106	90.4	98.8
Toluene-D8	2037-26-5	0.1	%	109	110	100	105	121
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	91.7	93.8	96.9	102



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.5	----	----	----	9.0
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	8	----	----	----	7
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	----	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	----	----	----	7
Manganese	7439-96-5	5	mg/kg	5	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	24	----	----	----	33
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<b>118</b>	<b>106</b>	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<b>129</b>	<b>116</b>	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<b>87</b>	<b>76</b>	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<b>0.9</b>	<b>0.8</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<b>20.7</b>	<b>19.6</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<b>2.7</b>	<b>2.5</b>	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<b>12.5</b>	<b>11.9</b>	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<b>5.2</b>	<b>5.0</b>	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<b>42.0</b>	<b>39.8</b>	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<b>17.7</b>	<b>16.9</b>	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>104</b>	----	----	----	<b>102</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>98.8</b>	----	----	----	<b>93.3</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	<b>88.0</b>	----	----	----	<b>85.3</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>90.0</b>	----	----	----	<b>89.2</b>
Anthracene-d10	1719-06-8	0.1	%	<b>80.1</b>	----	----	----	<b>78.1</b>
4-Terphenyl-d14	1718-51-0	0.1	%	<b>79.1</b>	----	----	----	<b>77.5</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>94.4</b>	<b>92.1</b>	<b>89.2</b>	<b>82.4</b>	<b>93.0</b>
Toluene-D8	2037-26-5	0.1	%	<b>108</b>	<b>107</b>	<b>106</b>	<b>97.5</b>	<b>102</b>
4-Bromofluorobenzene	460-00-4	0.1	%	<b>95.7</b>	<b>105</b>	<b>92.9</b>	<b>90.5</b>	<b>90.3</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	76	----	----
+150µm	----	1	%	----	----	69	----	----
+300µm	----	1	%	----	----	55	----	----
+425µm	----	1	%	----	----	45	----	----
+600µm	----	1	%	----	----	37	----	----
+1180µm	----	1	%	----	----	28	----	----
+2.36mm	----	1	%	----	----	20	----	----
+4.75mm	----	1	%	----	----	11	----	----
+9.5mm	----	1	%	----	----	<1	----	----
+19.0mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	4.1	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	6.2	14.2	7.7	13.2	8.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	24	----	----
Sand (>75 µm)	----	1	%	----	----	56	----	----
Gravel (>2mm)	----	1	%	----	----	20	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Sample weight (dry)	----	0.01	g	598	----	----	----	735
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.598	----	----	----	0.735
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	<0.001





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.4	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.8	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	<0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.2	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	1.4	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	<2	4	----	----	7
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	5	----	----	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	8	20	----	----	31
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	<5
Arsenic	7440-38-2	5	mg/kg	----	----	<5	10	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	3	5	----
Copper	7440-50-8	5	mg/kg	----	----	6	7	----
Lead	7439-92-1	5	mg/kg	----	----	8	11	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	<2	----
Zinc	7440-66-6	5	mg/kg	----	----	13	19	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.49	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
				ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.8</b>
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>5.0</b>
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>2.0</b>
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.2</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.9</b>
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.0</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>10.9</b>
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	29
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	440	350
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	1040	120
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1480	470
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	36
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	36
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	80
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	1210	380
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	430	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1640	460
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	80
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	97.3	101	110	99.6
2-Chlorophenol-D4	93951-73-6	0.1	%	97.7	96.6	95.5	99.8	92.7
2,4,6-Tribromophenol	118-79-6	0.1	%	89.3	84.3	86.6	85.4	80.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	92.3	91.3	90.3	88.8	87.7
Anthracene-d10	1719-06-8	0.1	%	80.8	80.8	80.2	79.8	69.1
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	80.0	79.5	76.8	72.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.5	92.1	90.7	119	108



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
Client sampling date / time	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00

Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	115	109	96.5	123	108
4-Bromofluorobenzene	460-00-4	0.1	%	91.2	91.5	87.3	95.7	81.0

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW07_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW20_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW09_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW11_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with grey rocks and plenty of vegetation.
EA200: Description	VO_MW10_0.2(BLACK) - 26-FEB-2014 15:00	Dark grey soil with plenty of large dark grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1404115</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V2)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: CM		

#### Dates

<b>Date Samples Received</b>	: 27-FEB-2014	<b>Issue Date</b>	: 28-FEB-2014 12:35
<b>Client Requested Due Date</b>	: 10-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>10-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 4.6° C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 27
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 15

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample VO\_MW10\_0.1 not received by ALS Sydney.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.







Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1404115-001	26-FEB-2014 15:00	VO_MW07_0.1		✓
ES1404115-002	26-FEB-2014 15:00	VO_MW07_1.0		✓
ES1404115-003	26-FEB-2014 15:00	VO_MW20_0.1		✓
ES1404115-004	26-FEB-2014 15:00	VO_MW20_1.5		✓
ES1404115-005	26-FEB-2014 15:00	VO_MW09_0.1		✓
ES1404115-006	26-FEB-2014 15:00	VO_MW09_0.5		✓
ES1404115-007	25-FEB-2014 15:00	T.BLK	✓	
ES1404115-008	25-FEB-2014 15:00	T.Sp	✓	
ES1404115-009	25-FEB-2014 15:00	TSC	✓	
ES1404115-011	26-FEB-2014 15:00	VO_MW10_1.0		✓
ES1404115-012	26-FEB-2014 15:00	VO_MW11_0.1		✓
ES1404115-013	26-FEB-2014 15:00	VO_MW11_1.5		✓
ES1404115-014	26-FEB-2014 15:00	VU_MW20_0.1		✓
ES1404115-015	26-FEB-2014 15:00	VU_MW20_0.5		✓
ES1404115-028	26-FEB-2014 15:00	VO_MW10_0.2 (BLACK)		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1404115</b>	Page	: 1 of 15
Amendment	: <b>1</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 11-MAR-2014
Site	: ----		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	78	----	----	----	----
+150µm	----	1	%	58	----	----	----	----
+300µm	----	1	%	34	----	----	----	----
+425µm	----	1	%	18	----	----	----	----
+600µm	----	1	%	8	----	----	----	----
+1180µm	----	1	%	2	----	----	----	----
+2.36mm	----	1	%	2	----	----	----	----
+4.75mm	----	1	%	<1	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.4	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	4.7	10.9	3.6	12.8	4.3
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	22	----	----	----	----
Sand (>75 µm)	----	1	%	76	----	----	----	----
Gravel (>2mm)	----	1	%	2	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	378	----	602	----	417
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.378	----	0.602	----	0.417
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.2	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	0.1	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	0.4	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	<5	<5
Barium	7440-39-3	10	mg/kg	<10	<10	<10	<10	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	17	<2	9	<2
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	6	<5	<5
Manganese	7439-96-5	5	mg/kg	11	<5	12	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	<5	46	9	26	6
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	1.06	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	117	98.3	103	108	103
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	95.2	96.4	104	95.7
2,4,6-Tribromophenol	118-79-6	0.1	%	88.4	89.5	95.7	87.9	91.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.2	89.7	91.2	89.3	89.3
Anthracene-d10	1719-06-8	0.1	%	84.1	79.3	80.1	77.8	78.9
4-Terphenyl-d14	1718-51-0	0.1	%	81.3	78.5	79.5	80.2	79.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.0	90.8	106	90.4	98.8
Toluene-D8	2037-26-5	0.1	%	109	110	100	105	121
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	91.7	93.8	96.9	102





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.5	----	----	----	9.0
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	8	----	----	----	7
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	----	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	----	----	----	7
Manganese	7439-96-5	5	mg/kg	5	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	24	----	----	----	33
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<b>118</b>	<b>106</b>	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<b>129</b>	<b>116</b>	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<b>87</b>	<b>76</b>	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<b>0.9</b>	<b>0.8</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<b>20.7</b>	<b>19.6</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<b>2.7</b>	<b>2.5</b>	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<b>12.5</b>	<b>11.9</b>	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<b>5.2</b>	<b>5.0</b>	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<b>17.7</b>	<b>16.9</b>	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<b>42.0</b>	<b>39.8</b>	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>104</b>	----	----	----	<b>102</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>98.8</b>	----	----	----	<b>93.3</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	<b>88.0</b>	----	----	----	<b>85.3</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>90.0</b>	----	----	----	<b>89.2</b>
Anthracene-d10	1719-06-8	0.1	%	<b>80.1</b>	----	----	----	<b>78.1</b>
4-Terphenyl-d14	1718-51-0	0.1	%	<b>79.1</b>	----	----	----	<b>77.5</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>94.4</b>	<b>92.1</b>	<b>89.2</b>	<b>82.4</b>	<b>93.0</b>
Toluene-D8	2037-26-5	0.1	%	<b>108</b>	<b>107</b>	<b>106</b>	<b>97.5</b>	<b>102</b>
4-Bromofluorobenzene	460-00-4	0.1	%	<b>95.7</b>	<b>105</b>	<b>92.9</b>	<b>90.5</b>	<b>90.3</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	76	----	----
+150µm	----	1	%	----	----	69	----	----
+300µm	----	1	%	----	----	55	----	----
+425µm	----	1	%	----	----	45	----	----
+600µm	----	1	%	----	----	37	----	----
+1180µm	----	1	%	----	----	28	----	----
+2.36mm	----	1	%	----	----	20	----	----
+4.75mm	----	1	%	----	----	11	----	----
+9.5mm	----	1	%	----	----	<1	----	----
+19.0mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	4.1	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	6.2	14.2	7.7	13.2	8.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	24	----	----
Sand (>75 µm)	----	1	%	----	----	56	----	----
Gravel (>2mm)	----	1	%	----	----	20	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Sample weight (dry)	----	0.01	g	598	----	----	----	735
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.598	----	----	----	0.735
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	<0.001



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.4	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.8	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	<0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.2	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	1.4	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	10	<5
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	4	3	5	7
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	<5	6	7	<5
Lead	7439-92-1	5	mg/kg	<5	5	8	11	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	8	20	----	----	31
Zinc	7440-66-6	5	mg/kg	<5	<5	13	19	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.49	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
				ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.8</b>
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>5.0</b>
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>2.0</b>
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.2</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.9</b>
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.0</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>10.9</b>
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<b>29</b>
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<b>440</b>	<b>350</b>
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<b>1040</b>	<b>120</b>
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<b>1480</b>	<b>470</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	36
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	36
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	80
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	1210	380
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	430	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1640	460
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	80
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	97.3	101	110	99.6
2-Chlorophenol-D4	93951-73-6	0.1	%	97.7	96.6	95.5	99.8	92.7
2,4,6-Tribromophenol	118-79-6	0.1	%	89.3	84.3	86.6	85.4	80.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	92.3	91.3	90.3	88.8	87.7
Anthracene-d10	1719-06-8	0.1	%	80.8	80.8	80.2	79.8	69.1
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	80.0	79.5	76.8	72.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.5	92.1	90.7	119	108
Toluene-D8	2037-26-5	0.1	%	115	109	96.5	123	108
4-Bromofluorobenzene	460-00-4	0.1	%	91.2	91.5	87.3	95.7	81.0





## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW07_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW20_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW09_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW11_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with grey rocks and plenty of vegetation.
EA200: Description	VO_MW10_0.2(BLACK) - 26-FEB-2014 15:00	Dark grey soil with plenty of large dark grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1404115</b>	Page	: 1 of 13
Amendment	: <b>1</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 11-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3321834)</b>									
ES1404063-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.7	7.7	0.0	0% - 20%
ES1404115-001	VO_MW07_0.1	EA002: pH Value	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3320453)</b>									
ES1404005-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.4	11.1	2.2	0% - 50%
ES1404008-019	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.1	13.2	0.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3320454)</b>									
ES1404115-006	VO_MW09_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.5	14.7	24.0	0% - 50%
ES1404446-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.1	17.4	1.8	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3318090)</b>									
ES1404115-001	VO_MW07_0.1	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.3	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.1	0.2	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	0.4	0.5	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3323631)</b>									
ES1404115-001	VO_MW07_0.1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	11	10	11.8	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1404115-015	VU_MW20_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3323631) - continued</b>											
ES1404115-015	VU_MW20_0.5	EG005T: Arsenic	7440-38-2	5	mg/kg	10	<5	65.2	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	7	<5	30.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	20.9	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	10	11	0.0	No Limit		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	20	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	19	18	0.0	No Limit		
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3323632)</b>											
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1404115-015	VU_MW20_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3324164)</b>											
ES1404115-001	VO_MW07_0.1	EP003: Total Organic Carbon	----	0.02	%	1.06	1.04	2.0	0% - 20%		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3320033)</b>											
ES1404115-001	VO_MW07_0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1404115-015	VU_MW20_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320033)</b>											
ES1404115-001	VO_MW07_0.1			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320033) - continued</b>									
ES1404115-001	VO_MW07_0.1	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1404115-015	VU_MW20_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3318314)</b>									
EB1404606-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1404115-003	VO_MW20_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320035)</b>										
ES1404115-001	VO_MW07_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1404115-015	VU_MW20_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	440	450	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	1040	1000	4.0	0% - 50%	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320156)</b>										
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1404392-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3318314)</b>										
EB1404606-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1404115-003	VO_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320035)</b>										
ES1404115-001	VO_MW07_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1404115-015	VU_MW20_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	1210	1210	0.0	0% - 50%	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	430	400	6.2	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320156)</b>										
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1404392-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3318314)</b>										
EB1404606-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1404115-003	VO_MW20_0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3320156)</b>										
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3320156) - continued</b>									
ES1404115-014	VU_MW20_0.1	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		ES1404392-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2
EP080: Toluene	108-88-3	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Ethylbenzene	100-41-4	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: ortho-Xylene	95-47-6	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Naphthalene	91-20-3	1		mg/kg	<1	<1	0.0	No Limit	



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3318090)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.4	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	103	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	109	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.4	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	111	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	102	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	94.4	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	115	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	110	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3324164)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	1.94 %	108	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	83.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	89.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	91.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	76.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	84.5	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	87.4	76.4	114	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033) - continued</b>									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.3	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	29.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	95.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	95.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	93.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	87.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.3	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	85.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	95.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	87.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	111	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	94.1	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	89.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	80.7	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	106	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	115	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	112	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	112	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	97.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	108	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	124	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.8	68.4	128	
<b>EP080: BTEXN (QCLot: 3318314)</b>									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3318314) - continued</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138	
<b>EP080: BTEXN (QCLot: 3320156)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.0	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	101	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.6	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>							
ES1404115-001	VO_MW07_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	98.8	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	102	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>							
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>							
ES1404115-001	VO_MW07_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.0	60	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033) - continued</b>								
ES1404115-001	VO_MW07_0.1	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.9	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>								
ES1404115-001	VO_MW07_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.1	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>								
ES1404115-001	VO_MW07_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	94.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	84.0	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	120	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>								
ES1404115-001	VO_MW07_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.5	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	75.9	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	112	70	130	
<b>EP080: BTEXN (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.0	70	130	
	91-20-3	2.5 mg/kg	73.8	70	130			
<b>EP080: BTEXN (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	70	130	
			106-42-3					
	95-47-6	2.5 mg/kg	93.6	70	130			



Sub-Matrix: SOIL

				Matrix Spike (MS) Report					
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
								Low	High
<b>EP080: BTEXN (QCLot: 3320156) - continued</b>									
ES1404115-014		VU_MW20_0.1		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report								
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)			
							MS	MSD	Low	High	Value	Control Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	----	70	130	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: Benzene	71-43-2	2.5 mg/kg	90.2	----	70	130	----	----		
				EP080: Toluene	108-88-3	2.5 mg/kg	89.1	----	70	130	----	----		
				EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.7	----	70	130	----	----		
				EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.2	----	70	130	----	----		
					106-42-3									
				EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.0	----	70	130	----	----		
				EP080: Naphthalene	91-20-3	2.5 mg/kg	73.8	----	70	130	----	----		
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>														
ES1404115-001		VO_MW07_0.1		EP075(SIM): Phenol	108-95-2	10 mg/kg	114	----	70	130	----	----		
				EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	----	70	130	----	----		
				EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.0	----	60	130	----	----		
				EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.9	----	70	130	----	----		
				EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	----	20	130	----	----		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>														
ES1404115-001		VO_MW07_0.1		EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.1	----	70	130	----	----		
				EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>														
ES1404115-001		VO_MW07_0.1		EP071: C10 - C14 Fraction	----	640 mg/kg	94.4	----	73	137	----	----		
				EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	----	53	131	----	----		
				EP071: C29 - C36 Fraction	----	2860 mg/kg	84.0	----	52	132	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>														
ES1404115-001		VO_MW07_0.1		EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	----	73	137	----	----		
				EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.5	----	53	131	----	----		
				EP071: >C34 - C40 Fraction	----	2400 mg/kg	75.9	----	52	132	----	----		





Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	120	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	112	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.6	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>											
ES1404115-001	VO_MW07_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	103	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	102	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	98.8	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	108	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	102	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>											
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404115</b>	Page	: 1 of 8
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 11-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	04-MAR-2014	05-MAR-2014	✓	04-MAR-2014	04-MAR-2014	✓	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	----	----	----	03-MAR-2014	12-MAR-2014	✓	
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	---	25-AUG-2014	----	04-MAR-2014	30-AUG-2014	✓	
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	---	25-AUG-2014	----	04-MAR-2014	30-AUG-2014	✓	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VO_MW07_0.1, VO_MW09_0.1, VO_MW10_0.2 - (BLACK), VO_MW20_0.1, VO_MW11_0.1	26-FEB-2014	---	25-AUG-2014	----	10-MAR-2014	06-SEP-2014	✓	
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	04-MAR-2014	26-MAR-2014	✓	04-MAR-2014	26-MAR-2014	✓	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	05-MAR-2014	25-AUG-2014	✓	06-MAR-2014	25-AUG-2014	✓	



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	05-MAR-2014	26-MAR-2014	✓	07-MAR-2014	26-MAR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b>								
VO_MW07_0.1, VU_MW20_0.1		26-FEB-2014	05-MAR-2014	26-MAR-2014	✓	05-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	04-MAR-2014	13-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	05-MAR-2014	13-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	05-MAR-2014	13-APR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> T.BLK, TSC	T.Sp,	25-FEB-2014	28-FEB-2014	11-MAR-2014	✓	03-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	VU_MW20_0.5,	26-FEB-2014	03-MAR-2014	12-MAR-2014	✓	04-MAR-2014	12-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1,	26-FEB-2014	28-FEB-2014	12-MAR-2014	✓	03-MAR-2014	12-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> T.BLK, TSC	T.Sp,	25-FEB-2014	28-FEB-2014	11-MAR-2014	✓	03-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	VU_MW20_0.5,	26-FEB-2014	03-MAR-2014	12-MAR-2014	✓	04-MAR-2014	12-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1,	26-FEB-2014	28-FEB-2014	12-MAR-2014	✓	03-MAR-2014	12-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.



Page : 7 of 8  
Work Order : ES1404115 Amendment 1  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## **Summary of Outliers**

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1404115</b>	Page	: 1 of 15
Amendment	: <b>2</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 26-MAR-2014
Site	: ----		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	78	----	----	----	----
+150µm	----	1	%	58	----	----	----	----
+300µm	----	1	%	34	----	----	----	----
+425µm	----	1	%	18	----	----	----	----
+600µm	----	1	%	8	----	----	----	----
+1180µm	----	1	%	2	----	----	----	----
+2.36mm	----	1	%	2	----	----	----	----
+4.75mm	----	1	%	<1	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.4	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	4.7	10.9	3.6	12.8	4.3
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	22	----	----	----	----
Sand (>75 µm)	----	1	%	76	----	----	----	----
Gravel (>2mm)	----	1	%	2	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	378	----	602	----	417
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.378	----	0.602	----	0.417
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.2	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	0.1	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	0.4	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	<5	<5
Barium	7440-39-3	10	mg/kg	<10	<10	<10	<10	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	17	<2	9	<2
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	6	<5	<5
Manganese	7439-96-5	5	mg/kg	11	<5	12	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	<5	46	9	26	6
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	1.06	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW07_0.1	VO_MW07_1.0	VO_MW20_0.1	VO_MW20_1.5	VO_MW09_0.1
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-001	ES1404115-002	ES1404115-003	ES1404115-004	ES1404115-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	117	98.3	103	108	103
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	95.2	96.4	104	95.7
2,4,6-Tribromophenol	118-79-6	0.1	%	88.4	89.5	95.7	87.9	91.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.2	89.7	91.2	89.3	89.3
Anthracene-d10	1719-06-8	0.1	%	84.1	79.3	80.1	77.8	78.9
4-Terphenyl-d14	1718-51-0	0.1	%	81.3	78.5	79.5	80.2	79.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.0	90.8	106	90.4	98.8
Toluene-D8	2037-26-5	0.1	%	109	110	100	105	121
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	91.7	93.8	96.9	102



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.5	----	----	----	9.0
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	8	----	----	----	7
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	----	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	----	----	----	7
Manganese	7439-96-5	5	mg/kg	5	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	24	----	----	----	33
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	<0.5



**Analytical Results**

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<b>118</b>	<b>106</b>	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<b>129</b>	<b>116</b>	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<b>87</b>	<b>76</b>	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW09_0.5	T.BLK	T.Sp	TSC	VO_MW10_1.0
				26-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-006	ES1404115-007	ES1404115-008	ES1404115-009	ES1404115-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<b>0.9</b>	<b>0.8</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<b>20.7</b>	<b>19.6</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<b>2.7</b>	<b>2.5</b>	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<b>12.5</b>	<b>11.9</b>	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<b>5.2</b>	<b>5.0</b>	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<b>17.7</b>	<b>16.9</b>	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<b>42.0</b>	<b>39.8</b>	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>104</b>	----	----	----	<b>102</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>98.8</b>	----	----	----	<b>93.3</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	<b>88.0</b>	----	----	----	<b>85.3</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>90.0</b>	----	----	----	<b>89.2</b>
Anthracene-d10	1719-06-8	0.1	%	<b>80.1</b>	----	----	----	<b>78.1</b>
4-Terphenyl-d14	1718-51-0	0.1	%	<b>79.1</b>	----	----	----	<b>77.5</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>94.4</b>	<b>92.1</b>	<b>89.2</b>	<b>82.4</b>	<b>93.0</b>
Toluene-D8	2037-26-5	0.1	%	<b>108</b>	<b>107</b>	<b>106</b>	<b>97.5</b>	<b>102</b>
4-Bromofluorobenzene	460-00-4	0.1	%	<b>95.7</b>	<b>105</b>	<b>92.9</b>	<b>90.5</b>	<b>90.3</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
				ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	76	----	----
+150µm	----	1	%	----	----	69	----	----
+300µm	----	1	%	----	----	55	----	----
+425µm	----	1	%	----	----	45	----	----
+600µm	----	1	%	----	----	37	----	----
+1180µm	----	1	%	----	----	28	----	----
+2.36mm	----	1	%	----	----	20	----	----
+4.75mm	----	1	%	----	----	11	----	----
+9.5mm	----	1	%	----	----	<1	----	----
+19.0mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	4.1	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	6.2	14.2	7.7	13.2	8.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	24	----	----
Sand (>75 µm)	----	1	%	----	----	56	----	----
Gravel (>2mm)	----	1	%	----	----	20	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Sample weight (dry)	----	0.01	g	598	----	----	----	735
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.598	----	----	----	0.735
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	<0.001



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.4	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.8	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	<0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.2	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	1.4	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	<0.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	10	<5
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	4	3	5	7
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	<5	6	7	<5
Lead	7439-92-1	5	mg/kg	<5	5	8	11	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	8	20	----	----	31
Zinc	7440-66-6	5	mg/kg	<5	<5	13	19	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.49	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
				ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.8</b>
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>5.0</b>
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>2.0</b>
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.2</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.9</b>
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.0</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>10.9</b>
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<b>29</b>
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<b>440</b>	<b>350</b>
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<b>1040</b>	<b>120</b>





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW11_0.1	VO_MW11_1.5	VU_MW20_0.1	VU_MW20_0.5	VO_MW10_0.2 (BLACK)
				26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404115-012	ES1404115-013	ES1404115-014	ES1404115-015	ES1404115-028
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1480	470
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	36
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	36
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	80
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	1210	380
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	430	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1640	460
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	80
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	97.3	101	110	99.6
2-Chlorophenol-D4	93951-73-6	0.1	%	97.7	96.6	95.5	99.8	92.7
2,4,6-Tribromophenol	118-79-6	0.1	%	89.3	84.3	86.6	85.4	80.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	92.3	91.3	90.3	88.8	87.7
Anthracene-d10	1719-06-8	0.1	%	80.8	80.8	80.2	79.8	69.1
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	80.0	79.5	76.8	72.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.5	92.1	90.7	119	108
Toluene-D8	2037-26-5	0.1	%	115	109	96.5	123	108
4-Bromofluorobenzene	460-00-4	0.1	%	91.2	91.5	87.3	95.7	81.0



## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW07_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW20_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW09_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with orange and grey rocks plus some vegetation.
EA200: Description	VO_MW11_0.1 - 26-FEB-2014 15:00	Mid grey - brown sandy soil with grey rocks and plenty of vegetation.
EA200: Description	VO_MW10_0.2(BLACK) - 26-FEB-2014 15:00	Dark grey soil with plenty of large dark grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

**QUALITY CONTROL REPORT**

Work Order	: <b>ES1404115</b>	Page	: 1 of 13
Amendment	: <b>2</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 26-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC



NATA Accredited  
 Laboratory 825

Accredited for  
 compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3321834)</b>									
ES1404063-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.7	7.7	0.0	0% - 20%
ES1404115-001	VO_MW07_0.1	EA002: pH Value	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3320453)</b>									
ES1404005-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.4	11.1	2.2	0% - 50%
ES1404008-019	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.1	13.2	0.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3320454)</b>									
ES1404115-006	VO_MW09_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.5	14.7	24.0	0% - 50%
ES1404446-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.1	17.4	1.8	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3318090)</b>									
ES1404115-001	VO_MW07_0.1	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.3	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.1	0.2	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	0.4	0.5	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3323631)</b>									
ES1404115-001	VO_MW07_0.1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	11	10	11.8	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1404115-015	VU_MW20_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3323631) - continued</b>											
ES1404115-015	VU_MW20_0.5	EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit		
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	<5	65.2	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	7	<5	30.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	20.9	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	10	11	0.0	No Limit		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	20	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	19	18	0.0	No Limit		
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3323632)</b>											
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1404115-015	VU_MW20_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3324164)</b>											
ES1404115-001	VO_MW07_0.1	EP003: Total Organic Carbon	----	0.02	%	1.06	1.04	2.0	0% - 20%		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3320033)</b>											
ES1404115-001	VO_MW07_0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1404115-015	VU_MW20_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320033)</b>											





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320033) - continued</b>									
ES1404115-001	VO_MW07_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1404115-015	VU_MW20_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3318314)</b>									
EB1404606-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3318314) - continued</b>										
ES1404115-003	VO_MW20_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320035)</b>										
ES1404115-001	VO_MW07_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1404115-015	VU_MW20_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	440	450	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	1040	1000	4.0	0% - 50%	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320156)</b>										
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1404392-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3318314)</b>										
EB1404606-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1404115-003	VO_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320035)</b>										
ES1404115-001	VO_MW07_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1404115-015	VU_MW20_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	1210	1210	0.0	0% - 50%	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	430	400	6.2	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320156)</b>										
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1404392-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3318314)</b>										
EB1404606-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1404115-003	VO_MW20_0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3320156)</b>									
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1404392-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3318090)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.4	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	103	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	109	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.4	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	111	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	102	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	94.4	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	115	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	110	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3324164)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	1.94 %	108	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	83.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	89.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	91.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	76.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	84.5	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.8	73	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033) - continued</b>									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	87.4	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.3	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	29.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	95.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	95.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	93.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	87.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.3	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	85.9	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	95.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	87.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	111	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	94.1	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	89.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	80.7	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	106	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	115	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	112	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	112	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	97.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	108	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	124	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.8	68.4	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3318314)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138	
<b>EP080: BTEXN (QCLot: 3320156)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.0	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	101	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.6	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>								
ES1404115-001	VO_MW07_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	102	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	98.8	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	102	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>								
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>								
ES1404115-001	VO_MW07_0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.0	60	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033) - continued</b>								
ES1404115-001	VO_MW07_0.1	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.9	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>								
ES1404115-001	VO_MW07_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.1	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>								
ES1404115-001	VO_MW07_0.1	EP071: C10 - C14 Fraction	----	640 mg/kg	94.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	84.0	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	120	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>								
ES1404115-001	VO_MW07_0.1	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.5	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	75.9	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	112	70	130	
<b>EP080: BTEXN (QCLot: 3318314)</b>								
EB1404606-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.0	70	130	
	91-20-3	2.5 mg/kg	73.8	70	130			
<b>EP080: BTEXN (QCLot: 3320156)</b>								
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	70	130	
			106-42-3					
EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.6	70	130			





Sub-Matrix: SOIL

				Matrix Spike (MS) Report					
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
								Low	High
<b>EP080: BTEXN (QCLot: 3320156) - continued</b>									
ES1404115-014		VU_MW20_0.1		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report								
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)			
							MS	MSD	Low	High	Value	Control Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	----	70	130	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3318314)</b>														
EB1404606-001		Anonymous		EP080: Benzene	71-43-2	2.5 mg/kg	90.2	----	70	130	----	----		
				EP080: Toluene	108-88-3	2.5 mg/kg	89.1	----	70	130	----	----		
				EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.7	----	70	130	----	----		
				EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.2	----	70	130	----	----		
					106-42-3									
				EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.0	----	70	130	----	----		
				EP080: Naphthalene	91-20-3	2.5 mg/kg	73.8	----	70	130	----	----		
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320033)</b>														
ES1404115-001		VO_MW07_0.1		EP075(SIM): Phenol	108-95-2	10 mg/kg	114	----	70	130	----	----		
				EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	----	70	130	----	----		
				EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.0	----	60	130	----	----		
				EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.9	----	70	130	----	----		
				EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	----	20	130	----	----		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320033)</b>														
ES1404115-001		VO_MW07_0.1		EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.1	----	70	130	----	----		
				EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320035)</b>														
ES1404115-001		VO_MW07_0.1		EP071: C10 - C14 Fraction	----	640 mg/kg	94.4	----	73	137	----	----		
				EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	----	53	131	----	----		
				EP071: C29 - C36 Fraction	----	2860 mg/kg	84.0	----	52	132	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320035)</b>														
ES1404115-001		VO_MW07_0.1		EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	----	73	137	----	----		
				EP071: >C16 - C34 Fraction	----	4800 mg/kg	79.5	----	53	131	----	----		
				EP071: >C34 - C40 Fraction	----	2400 mg/kg	75.9	----	52	132	----	----		



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	120	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	112	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3320156)</b>											
ES1404115-014	VU_MW20_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.6	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323631)</b>											
ES1404115-001	VO_MW07_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	103	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	102	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	98.8	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	108	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	102	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>											
ES1404115-001	VO_MW07_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404115</b>	Page	: 1 of 8
Amendment	: <b>2</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 27-FEB-2014
Sampler	: CM	Issue Date	: 26-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	04-MAR-2014	05-MAR-2014	✓	04-MAR-2014	04-MAR-2014	✓	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	----	----	----	03-MAR-2014	12-MAR-2014	✓	
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	---	25-AUG-2014	----	04-MAR-2014	30-AUG-2014	✓	
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	---	25-AUG-2014	----	04-MAR-2014	30-AUG-2014	✓	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VO_MW07_0.1, VO_MW09_0.1, VO_MW10_0.2 - (BLACK), VO_MW20_0.1, VO_MW11_0.1	26-FEB-2014	---	25-AUG-2014	----	10-MAR-2014	06-SEP-2014	✓	
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VO_MW07_0.1, VU_MW20_0.1	26-FEB-2014	04-MAR-2014	26-MAR-2014	✓	04-MAR-2014	26-MAR-2014	✓	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	05-MAR-2014	25-AUG-2014	✓	06-MAR-2014	25-AUG-2014	✓	



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	05-MAR-2014	26-MAR-2014	✓	07-MAR-2014	26-MAR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b>								
VO_MW07_0.1, VU_MW20_0.1		26-FEB-2014	05-MAR-2014	26-MAR-2014	✓	05-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	04-MAR-2014	13-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	05-MAR-2014	13-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5, VU_MW20_0.5, VO_MW10_0.2 - (BLACK)	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1, VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	26-FEB-2014	04-MAR-2014	12-MAR-2014	✓	05-MAR-2014	13-APR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> T.BLK, TSC	T.Sp,	25-FEB-2014	28-FEB-2014	11-MAR-2014	✓	03-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	VU_MW20_0.5,	26-FEB-2014	03-MAR-2014	12-MAR-2014	✓	04-MAR-2014	12-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1,	26-FEB-2014	28-FEB-2014	12-MAR-2014	✓	03-MAR-2014	12-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> T.BLK, TSC	T.Sp,	25-FEB-2014	28-FEB-2014	11-MAR-2014	✓	03-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW20_0.1, VO_MW10_0.2 - (BLACK)	VU_MW20_0.5,	26-FEB-2014	03-MAR-2014	12-MAR-2014	✓	04-MAR-2014	12-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW07_0.1, VO_MW20_0.1, VO_MW09_0.1, VO_MW10_1.0, VO_MW11_1.5	VO_MW07_1.0, VO_MW20_1.5, VO_MW09_0.5, VO_MW11_0.1,	26-FEB-2014	28-FEB-2014	12-MAR-2014	✓	03-MAR-2014	12-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

Page : 7 of 8  
Work Order : ES1404115 Amendment 2  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



CHAIN OF CUSTODY

ALS Laboratory, please tick →

ENT: ERM

PROJECT: PYRMONT (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

DER NUMBER: 0237747

E MANAGER: JOHN EWING

CONTACT PH: 0401 776 290

WPLR: CUREAS MASTERS SAMPLER MOBILE: 0439 130 527

C emailed to ALST (YES / NO) EDD FORMAT (or default):

all Reports to (will default to PM if no other addresses are listed): symphony.dellaocasi@erm.com

all invoice to (will default to PM if no other addresses are listed): symphony.dellaocasi@erm.com

MENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  Standard TAT (list due date):  Non Standard or urgent TAT (list due date):

SY-050-14  
COC SEQUENCE NUMBER (circle)  
1 2 3 4 5 6 7  
OR: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY  
Custody Seal intact?   
Free ice / frozen ice bricks present upon receipt?   
Random Sample Temperature on Receipt:   
Other comment:

Subcontracted for analysis: **140 / Spit WQ1**  
Organised By / Date: **11/10/14**  
Relinquished By / Date: **14/11/14**  
Comnote / Courier: **14/11/14**

RELINQUISHED BY: **John Ewing** DATE/TIME: **27/12/13**  
RECEIVED BY: **DAVID** DATE/TIME: **27/12**  
RELINQUISHED BY: **John Ewing** DATE/TIME: **27.12.14**  
RECEIVED BY: **DAVID** DATE/TIME: **1900**

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).										Additional Information						
AB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	TRH Ultra Trace PAH	BTEX Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
1	VO-MMW07-0-1	26/12/14	S	1x SAc 2x BAg		3	X	X	X	X				X	X				NOF VOC
2	VO-MMW07-1-0		S	1x SAc 1x BAg		2	X	X											ON HOLD
3	VO-MMW07-1-5		S	1x SAc 2x BAg		2	X	X											ON HOLD
4	VO-MMW20-0-1		S	1x SAc 1x BAg		2	X	X											ON HOLD
5	VO-MMW20-0-5		S	1x SAc		2	X	X											ON HOLD
6	VO-MMW09-0-1		S	1x SAc 2x BAg		3	X	X											ON HOLD
7	VO-MMW09-0-5		S	1x SAc 1x BAg		2	X	X											ON HOLD
8	VO-MMW09-1-0		S	1x SAc		2	X	X											ON HOLD
9	VO-MMW09-1-5		S	1x SAc		1	X	X											ON HOLD

at Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; VOA = Vial Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass

Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

Environmental Division  
Sydney  
Work Order  
**ES1404115**

Telephone: +61-2-8784 8555

Barcode:

9 TSC



# CHAIN OF CUSTODY

ALS Laboratory  
Please tick →

ENT: ERM

FILE: PYRMONT

PROJECT: VALES POINT POWER STATION

DEP NUMBER: 0237747

E MANAGER: JOHN EWING

WPLER: CHLOE MYSTERS

C emailed to ALS7 (SRS / NO)

all Reports to (will default to PM if no other addresses are listed): symphony.dela.coast@erm.com

all Invoice to (will default to PM if no other addresses are listed): symphony.dela.coast@erm.com

MENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  Standard TAT (list due date);  Non Standard or urgent TAT (list due date);

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.: SY-050-14

CONTACT PH: 0401 778 290

SAMPLER MOBILE: 0434 130 527

EDD FORMAT (or default):

RELINQUISHED BY: SA Ben

DATE/TIME: 27/2/13

RECEIVED BY: SA

DATE/TIME: 27.2.14 1640

RELINQUISHED BY: SA

DATE/TIME: 27.2.14 1705

RECEIVED BY: Dec 1

DATE/TIME: 27/2

RECEIVED BY: Lucas

DATE/TIME: 1400

FOR LABORATORY USE ONLY (Circle)

Custody Seal (initialed)?

Free ice / frozen ice bricks present upon receipt?

Random Sample Temperature on Receipt:

Other comment:

Yes

No

Yes

No

N/A

ANALYSIS REQUIRED INCLUDING SUITES (Use Suite Codes must be listed to attract suite price)  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUITES (Use Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).	Additional Information																
AB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to codes below)	TOTAL CONTAINERS	6 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD sieve / TOC Lecc	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
10	VO - MW10 - 0.1	26/2/14	S	1x SAE 2x BAE		3		X	X	X										ON HOLD
22	VO - MW10 - 0.5		S	1x SAE 1x BAE		2		X	X											ON HOLD
11	VO - MW10 - 1.0		S			2		X	X											ON HOLD
23	VO - MW10 - 1.5		S			2		X	X											ON HOLD
12	VO - MW11 - 0.1		S	1x SAE 2x BAE		3		X	X	X										ON HOLD
24	VO - MW11 - 0.5		S	1x SAE 1x BAE		2		X	X											ON HOLD
25	VO - MW11 - 1.0		S			2		X	X											ON HOLD
13	VO - MW11 - 1.5		S			2		X	X											ON HOLD
14	VO - MW20 - 0.1		S			2		X	X											ON HOLD
15	VO - MW20 - 0.5		S			2		X	X											ON HOLD
26	VO - MW20 - 1.0		S			2		X	X											ON HOLD
27	VO - MW20 - 1.5		S			2		X	X											ON HOLD

or Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airflight Unpreserved Plastic; VOA Via HCl Preserved; VB = VOA Via Sodium Bisulfate Preserved; VS = VOA Via Sulfuric Preserved; AV = Airflight Unpreserved Vial SQ = Sulfuric Preserved Amber Glass; H = HQ Preserved Plastic; HS = HCl Preserved Speciation bottle; Sp = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; ZINC Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Stottle Bottle; SAS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

28 VO - MW10 - 0:2 (Black)   
 29 VO - MW10 - 0:2 (Brown)   
 7 received extra

**Sepan Mahamad**

**From:** Kirsten Garlick  
**Sent:** Thursday, 27 February 2014 5:11 PM  
**To:** Wael Saleh; Jacob Waugh; Sepan Mahamad; Hitesh Patel  
**Cc:** Samples Newcastle; Samples Sydney  
**Subject:** ES1404115 (ERM)

Hi all,

Please refer to the attached.

We have kept soil bags here for the following samples:

Asbestos:

- VO\_MW\_07\_0.1
- VO\_MW20\_0.1
- VO\_MW09\_0.1
- VO\_MW11\_0.1

PSD:

- VO\_MW07\_0.1
- VU\_MW20\_0.1

The sample ~~VO\_MW10\_0.1~~ was not received but we did receive a sample labeled VO\_MW10\_0.2

~~We received 2 soil bags and one jar with this VO\_MW10\_0.2~~ identification. But the two soil bags are very different samples, one being black and one brown. We have sent these to you.

If it is confirmed that this is actually the VO\_MW10\_0.1 sample then we will require volume sent back for the asbestos analysis.

~~I thought I would leave it up to you guys to contact the client~~ as last time we had heaps of issues with this ERM work and various people from both labs were trying to solve the same problems and it just got more confusing for everyone!

Thanks,

**Kirsten Garlick**

Sample Receipt Officer/Committal Clerk  
ALS | Environmental Division

5/585-Maitland-Road  
Mayfield West NSW 2304 Australia

*How was your customer experience? Please send us your feedback*

*Please see our latest EnviroMail 66 - Cryptosporidium Genotyping - May 2013*

T +61 2 4014 2500  
D +61 2 4014 2503  
F +61 2 4968 0349  
www.alsglobal.com

Winner of the inaugural CARE Award 2011 - Sustainable Technology & Innovation:  
Reduction in Sample Volumes - Improving quality, safety, efficiency and sustainability in environmental practices

Description:  
Description:  
Description:  
Description:

# Certificate of Analysis

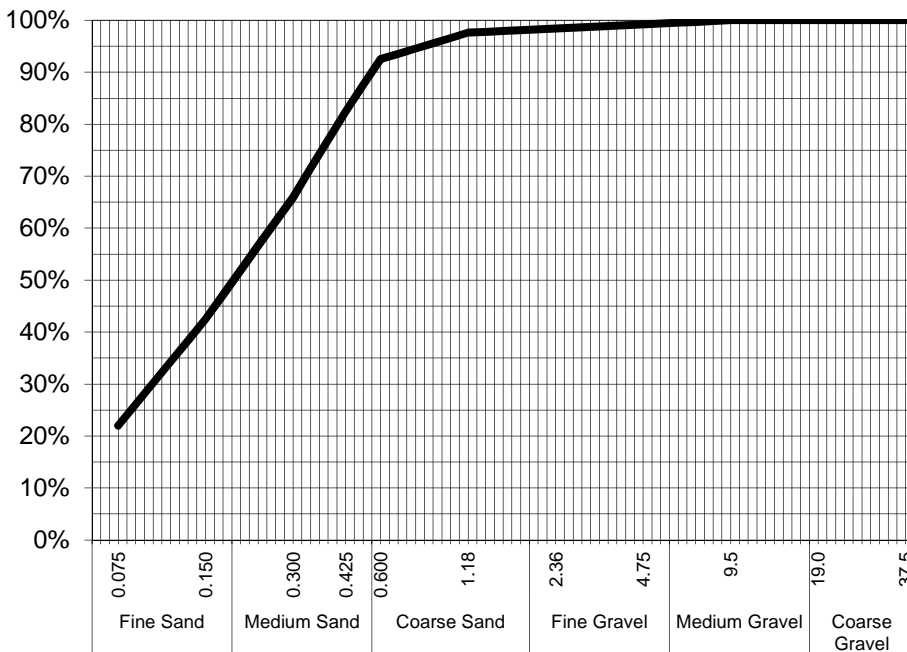
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 5-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 27-Feb-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1404115-001 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VO\_MW07\_0.1

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	98%
1.18	98%
0.600	93%
0.425	83%
0.300	66%
0.150	43%
0.075	22%

Samples analysed as received.

Median Particle Size (mm)	0.150
---------------------------	-------

**Sample Comments:**

**Analysed:** 3-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

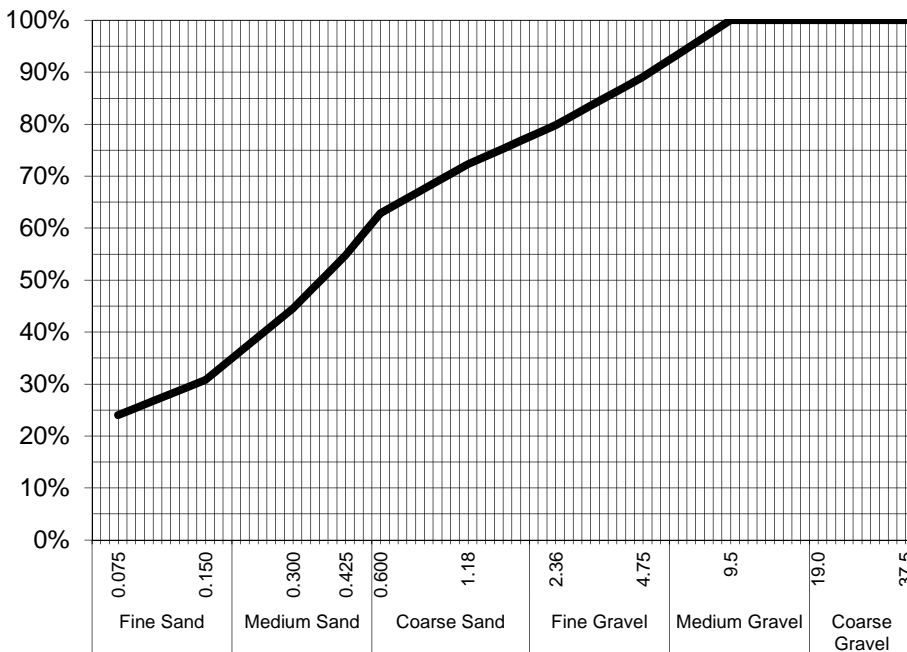
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing      **DATE REPORTED:** 5-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 27-Feb-2014  
**ADDRESS:** Ground Floor      **REPORT NO:** ES1404115-014 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VU\_MW20\_0.1

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	89%
2.36	80%
1.18	72%
0.600	63%
0.425	55%
0.300	45%
0.150	31%
0.075	24%

Samples analysed as received.

Median Particle Size (mm)	0.300
---------------------------	-------

**Sample Comments:**

**Analysed:** 3-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand, fines and gravel

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1404400</b>	Page	: 1 of 26
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 28-FEB-2014
C-O-C number	: ----	Issue Date	: 11-MAR-2014
Sampler	: RP	No. of samples received	: 51
Site	: ----	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG020:** Positive result for Zinc for sample ES1404400 #013 has been confirmed by re-analysis.



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW06_0.2	VO_MW05_0.2	VO_MW04_0.2	VO_MW04_0.5	VP_MW01_0.2
				27-FEB-2014 08:45	27-FEB-2014 09:30	27-FEB-2014 10:30	27-FEB-2014 10:30	27-FEB-2014 11:20
Compound	CAS Number	LOR	Unit	ES1404400-001	ES1404400-002	ES1404400-003	ES1404400-004	ES1404400-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.2	5.5	----	10.9	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	----	No
Asbestos Type	1332-21-4	-	--	-	-	-	----	-
Sample weight (dry)	----	0.01	g	512	657	689	----	607
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.512	0.657	0.689	----	0.607
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	No	No	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	8	----
Barium	7440-39-3	10	mg/kg	90	30	----	10	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	4	4	----	9	----
Cobalt	7440-48-4	2	mg/kg	3	3	----	<2	----
Copper	7440-50-8	5	mg/kg	12	10	----	<5	----
Lead	7439-92-1	5	mg/kg	10	6	----	6	----
Manganese	7439-96-5	5	mg/kg	386	171	----	15	----
Nickel	7440-02-0	2	mg/kg	6	7	----	<2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	<5	----
Vanadium	7440-62-2	5	mg/kg	11	12	----	34	----
Zinc	7440-66-6	5	mg/kg	35	22	----	8	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW06_0.2	VO_MW05_0.2	VO_MW04_0.2	VO_MW04_0.5	VP_MW01_0.2
				27-FEB-2014 08:45	27-FEB-2014 09:30	27-FEB-2014 10:30	27-FEB-2014 10:30	27-FEB-2014 11:20
				ES1404400-001	ES1404400-002	ES1404400-003	ES1404400-004	ES1404400-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<b>2.1</b>	<b>0.6</b>	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<b>5.8</b>	<b>2.4</b>	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<b>2.1</b>	<b>1.1</b>	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<b>1.3</b>	<b>0.7</b>	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<b>0.9</b>	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<b>0.9</b>	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<b>0.5</b>	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<b>13.6</b>	<b>4.8</b>	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.7</b>	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW06_0.2	VO_MW05_0.2	VO_MW04_0.2	VO_MW04_0.5	VP_MW01_0.2
				27-FEB-2014 08:45	27-FEB-2014 09:30	27-FEB-2014 10:30	27-FEB-2014 10:30	27-FEB-2014 11:20
Compound	CAS Number	LOR	Unit	ES1404400-001	ES1404400-002	ES1404400-003	ES1404400-004	ES1404400-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	60	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	430	170	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	130	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	620	170	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	12	12	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	12	12	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	110	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	470	180	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	580	180	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	110	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	79.9	84.6	----	104	----
2-Chlorophenol-D4	93951-73-6	0.1	%	83.8	83.1	----	92.2	----
2,4,6-Tribromophenol	118-79-6	0.1	%	86.3	108	----	105	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.2	89.6	----	87.5	----
Anthracene-d10	1719-06-8	0.1	%	82.8	83.9	----	81.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.7	89.0	----	82.5	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.6	78.4	----	79.0	----
Toluene-D8	2037-26-5	0.1	%	82.6	88.0	----	84.2	----



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW06_0.2	VO_MW05_0.2	VO_MW04_0.2	VO_MW04_0.5	VP_MW01_0.2
				27-FEB-2014 08:45	27-FEB-2014 09:30	27-FEB-2014 10:30	27-FEB-2014 10:30	27-FEB-2014 11:20
Compound	CAS Number	LOR	Unit	ES1404400-001	ES1404400-002	ES1404400-003	ES1404400-004	ES1404400-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	78.9	83.0	----	86.3	----

Client sampling date / time





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_0.5	VP_SB04_0.2	VP_SB04_0.5	DO1_270214_RP	VP_SB05_0.2
				27-FEB-2014 11:20	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-006	ES1404400-007	ES1404400-008	ES1404400-009	ES1404400-010
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.2	----	23.3	21.5	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	No
Asbestos Type	1332-21-4	-	--	----	-	----	----	-
Sample weight (dry)	----	0.01	g	----	534	----	----	681
APPROVED IDENTIFIER:	----	-	--	----	S.SPOONER	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.534	----	----	0.681
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	3	----	2	3	----
Copper	7440-50-8	5	mg/kg	<5	----	<5	6	----
Lead	7439-92-1	5	mg/kg	5	----	6	10	----
Nickel	7440-02-0	2	mg/kg	<2	----	<2	<2	----
Zinc	7440-66-6	5	mg/kg	<5	----	9	14	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_0.5	VP_SB04_0.2	VP_SB04_0.5	DO1_270214_RP	VP_SB05_0.2
				27-FEB-2014 11:20	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-006	ES1404400-007	ES1404400-008	ES1404400-009	ES1404400-010
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_0.5	VP_SB04_0.2	VP_SB04_0.5	DO1_270214_RP	VP_SB05_0.2
				27-FEB-2014 11:20	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-006	ES1404400-007	ES1404400-008	ES1404400-009	ES1404400-010
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_0.5	VP_SB04_0.2	VP_SB04_0.5	DO1_270214_RP	VP_SB05_0.2
				27-FEB-2014 11:20	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-006	ES1404400-007	ES1404400-008	ES1404400-009	ES1404400-010
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_0.5	VP_SB04_0.2	VP_SB04_0.5	DO1_270214_RP	VP_SB05_0.2
				27-FEB-2014 11:20	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 12:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-006	ES1404400-007	ES1404400-008	ES1404400-009	ES1404400-010
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	----	110	113	----
Toluene-D8	2037-26-5	0.1	%	97.0	----	106	105	----
4-Bromofluorobenzene	460-00-4	0.1	%	75.1	----	91.1	96.8	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	97.8	----	96.5	95.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	98.1	----	96.3	100	----
2,4,6-Tribromophenol	118-79-6	0.1	%	110	----	112	91.6	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.6	----	85.8	98.0	----
Anthracene-d10	1719-06-8	0.1	%	87.8	----	89.2	89.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	87.8	----	85.8	91.4	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	----	105	108	----
Toluene-D8	2037-26-5	0.1	%	89.4	----	97.6	128	----
4-Bromofluorobenzene	460-00-4	0.1	%	78.3	----	95.5	110	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	21.0	9.9	14.5	9.7	9.5
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	686	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	S.SPOONER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.686	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	----	<10	<10
Beryllium	7440-41-7	1	mg/kg	----	----	----	<1	<1
Boron	7440-42-8	50	mg/kg	----	----	----	<50	<50
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	2	2
Cobalt	7440-48-4	2	mg/kg	----	----	----	2	2
Copper	7440-50-8	5	mg/kg	----	----	----	<5	<5
Lead	7439-92-1	5	mg/kg	----	----	----	6	6
Manganese	7439-96-5	5	mg/kg	----	----	----	51	52
Nickel	7440-02-0	2	mg/kg	----	----	----	3	3
Selenium	7782-49-2	5	mg/kg	----	----	----	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	----	10	8
Zinc	7440-66-6	5	mg/kg	----	----	----	27	26
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	36	19	19	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	<5	<5	5	----	----
Nickel	7440-02-0	2	mg/kg	3	<2	<2	----	----
Zinc	7440-66-6	5	mg/kg	<5	6	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	101	----	----	----
Toluene-D8	2037-26-5	0.1	%	125	98.4	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB05_1.0(TOC)	VP_SB06_0.5	VU_MW20_9.0	VO_MW09_2.0	D01_270214_CM
				27-FEB-2014 15:00	27-FEB-2014 15:30	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404400-011	ES1404400-012	ES1404400-014	ES1404400-015	ES1404400-016
<b>EP074S: VOC Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	93.9	81.4	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.6	101	83.6	89.6	85.7
2-Chlorophenol-D4	93951-73-6	0.1	%	88.8	102	86.3	91.1	85.7
2,4,6-Tribromophenol	118-79-6	0.1	%	101	93.4	108	106	110
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	99.6	92.1	86.0	87.1	85.2
Anthracene-d10	1719-06-8	0.1	%	82.2	84.5	81.7	89.7	81.5
4-Terphenyl-d14	1718-51-0	0.1	%	85.6	89.0	84.6	87.4	82.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	96.9	82.7	83.9	83.8
Toluene-D8	2037-26-5	0.1	%	116	90.7	95.5	94.1	94.0
4-Bromofluorobenzene	460-00-4	0.1	%	94.0	81.6	95.0	94.4	96.3



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW09_8.0	T_SP14	BLANK	TSC	----
				27-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	----
				ES1404400-017	ES1404400-031	ES1404400-032	ES1404400-033	----
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.4	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	40	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	17	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	2	----	----	----	----
Copper	7440-50-8	5	mg/kg	6	----	----	----	----
Lead	7439-92-1	5	mg/kg	8	----	----	----	----
Manganese	7439-96-5	5	mg/kg	15	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	12	----	----	----	----
Zinc	7440-66-6	5	mg/kg	10	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW09_8.0	T_SP14	BLANK	TSC	----
				27-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1404400-017	ES1404400-031	ES1404400-032	ES1404400-033	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW09_8.0	T_SP14	BLANK	TSC	----
				27-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1404400-017	ES1404400-031	ES1404400-032	ES1404400-033	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.6	<0.2	0.7	----
Toluene	108-88-3	0.5	mg/kg	<0.5	21.2	<0.5	24.1	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1	<0.5	2.4	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	10.3	<0.5	11.8	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	3.9	<0.5	4.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	14.2	<0.5	16.3	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	38.1	<0.2	43.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	90.6	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	112	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	86.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	88.6	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	78.2	74.4	88.3	86.4	----
Toluene-D8	2037-26-5	0.1	%	84.0	82.3	102	97.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	86.6	84.6	97.7	93.6	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_270214

---

---

---

---

Client sampling date / time

27-FEB-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404400-013	---	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.006	---	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_270214

---

---

---

---

Client sampling date / time

27-FEB-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404400-013	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP074E: Halogenated Aliphatic Compounds - Continued

Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---

### EP074F: Halogenated Aromatic Compounds

Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_270214

---

---

---

---

Client sampling date / time

27-FEB-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404400-013	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP074F: Halogenated Aromatic Compounds - Continued

1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---

### EP074G: Trihalomethanes

Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_270214

---

---

---

---

Client sampling date / time

27-FEB-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404400-013	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP074S: VOC Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_270214**

----

----

----

----

Client sampling date / time

27-FEB-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1404400-013	----	----	----	----
<b>EP074S: VOC Surrogates - Continued</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	124	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	115	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	44.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	73.4	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	62.8	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	73.2	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	92.7	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	95.7	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	132	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	115	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	112	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW06_0.2 - 27-FEB-2014 08:45	Mid brown - grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VO_MW05_0.2 - 27-FEB-2014 09:30	Mid yellow - brown sandy soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VO_MW04_0.2 - 27-FEB-2014 10:30	Mid yellow clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VP_MW01_0.2 - 27-FEB-2014 11:20	Mid brown clay soil with grey and red rocks plus some charcoal debris and vegetation.
EA200: Description	VP_SB04_0.2 - 27-FEB-2014 12:00	Mid yellow clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VP_SB05_0.2 - 27-FEB-2014 15:00	Mid yellow - brown clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VP_SB06_0.5 - 27-FEB-2014 15:30	Mid orange clay soil with red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1404400</b>	Page	: 1 of 26
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 28-FEB-2014
C-O-C number	: ----	Issue Date	: 11-MAR-2014
Sampler	: RP	No. of samples received	: 51
Order number	: 0237747	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3320950)</b>									
ES1404356-106	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.1	18.6	3.1	0% - 50%
ES1404400-014	VU_MW20_9.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.5	13.0	11.3	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3323633)</b>									
ES1404385-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	255	227	11.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	3890	3840	1.2	0% - 20%
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1404400-011	VP_SB05_1.0(TOC)	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	36	34	4.7	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	36.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	6	25.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	10	68.8	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	78	74	4.7	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3323632)</b>									
ES1404115-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404115-015	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3323634)</b>									
ES1404385-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3320466) - continued</b>									
ES1404404-001	Anonymous	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3320466)</b>									
ES1404404-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3320051)</b>									
ES1404400-001	VO_MW06_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1404400-015	VO_MW09_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3320051) - continued</b>									
ES1404400-015	VO_MW09_2.0	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320051)</b>									
ES1404400-001	VO_MW06_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	2.1	2.2	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	5.8	6.4	9.8	0% - 50%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.1	2.1	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.3	1.3	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.9	0.9	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.9	0.9	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	13.6	13.8	1.4	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404400-015	VO_MW09_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3320051) - continued</b>									
ES1404400-015	VO_MW09_2.0	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320050)</b>									
ES1404400-001	VO_MW06_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	430	430	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	130	120	8.2	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	60	60	0.0	No Limit
ES1404400-015	VO_MW09_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320336)</b>									
ES1404400-001	VO_MW06_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	10	0.0	No Limit
ES1404425-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320465)</b>									
ES1404404-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320050)</b>									
ES1404400-001	VO_MW06_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	470	460	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	110	120	0.0	No Limit
ES1404400-015	VO_MW09_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320336)</b>									
ES1404400-001	VO_MW06_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	12	13	0.0	No Limit
ES1404425-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320465)</b>									
ES1404404-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3320336)</b>									
ES1404400-001	VO_MW06_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3320336) - continued</b>									
ES1404400-001	VO_MW06_0.2	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404425-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>EP080: BTEXN (QC Lot: 3320465)</b>									
ES1404404-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>Sub-Matrix: <b>WATER</b></b>									
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3324368)</b>									
EP1401577-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0033	0.0034	0.0	0% - 20%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.034	0.035	2.9	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	10.6	10.7	0.6	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.251	0.251	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.046	0.046	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	131	136	3.9	0% - 20%
ES1404507-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3324369)</b>									
EP1401594-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1404526-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3320345)</b>									





Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3320345) - continued</b>											
ES1404147-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
ES1404387-001	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074B: Oxygenated Compounds (QC Lot: 3320345)</b>	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit		
		ES1404387-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
				EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1			50	µg/L	<50	<50	0.0	No Limit		
EP074: 2-Hexanone (MBK)	591-78-6			50	µg/L	<50	<50	0.0	No Limit		
<b>EP074C: Sulfonated Compounds (QC Lot: 3320345)</b>											
ES1404147-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit		
ES1404387-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074D: Fumigants (QC Lot: 3320345)</b>											
ES1404147-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
ES1404387-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3320345) - continued</b>									
ES1404387-001	Anonymous	EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3320345)</b>									
ES1404147-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1404387-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3320345) - continued</b>									
ES1404387-001	Anonymous	EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3320345)</b>									
ES1404147-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1404387-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3320345)</b>									
ES1404147-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074G: Trihalomethanes (QC Lot: 3320345) - continued</b>										
ES1404147-001	Anonymous	EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1404387-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3320346)</b>										
ES1404147-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3320346)</b>										
ES1404147-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3320346)</b>										
ES1404147-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323633)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	104	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	111	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	106	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	118	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	114	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323634)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.1	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3320466)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	93.9	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	91.3	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	91.7	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	90.6	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	91.2	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	90.7	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	88.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3320466)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	82.2	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	108	58	136	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3320466) - continued</b>									
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	99.2	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	95.6	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3320466)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	107	54	126	
<b>EP074D: Fumigants (QCLot: 3320466)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	97.8	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	97.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	98.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	84.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	93.8	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320466)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	89.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	103	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	96.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	105	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	103	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	99.8	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	101	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	98.1	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	98.2	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	101	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.2	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	95.3	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	96.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	95.7	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	98.8	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	94.6	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	97.0	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	94.8	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	97.4	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	67	143	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320466) - continued</b>									
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	99.7	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	98.0	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.5	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	89.2	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	114	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	84.4	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320466)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	91.8	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	92.6	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	91.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	90.9	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	91.6	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.9	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	91.0	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	86.9	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	88.3	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3320466)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	97.2	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	96.9	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	89.2	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	82.5	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320051)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	85.5	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	85.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	84.9	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	85.8	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.4	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	85.2	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	86.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.5	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	83.2	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	97.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	23.7	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320051)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	93.8	80	124	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320051) - continued</b>									
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	93.8	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	92.4	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	92.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	95.0	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	94.5	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	95.4	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	95.8	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.8	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.0	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	90.3	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	97.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	87.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	86.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.7	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320050)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	93.1	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	91.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	91.4	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320336)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320465)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320050)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	93.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	91.4	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	89.8	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320336)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.7	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320465)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.4	68.4	128	
<b>EP080: BTEXN (QCLot: 3320336)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	90.5	60	120	
	106-42-3								



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3320336) - continued</b>									
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	69.1	62	138	
<b>EP080: BTEXN (QCLot: 3320465)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.4	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	75.6	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	76.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.2	62	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3324368)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	89.7	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.6	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.9	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	88.5	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.4	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.4	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.4	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3324369)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.4	78	114	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3320345)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.2	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.9	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	87.7	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	90.2	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	92.2	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	88.7	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	90.4	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	90.5	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	86.2	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3320345)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	70.2	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	104	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	117	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	133	65	137	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP074C: Sulfonated Compounds (QCLot: 3320345)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	76.6	72.8	127	
<b>EP074D: Fumigants (QCLot: 3320345)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	79.1	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	110	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	120	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	82.9	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	114	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320345)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	71.3	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	70.2	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	75.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	69.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	68.5	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	77.6	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	73.4	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	72.2	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	75.9	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	78.4	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	79.2	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	103	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	107	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	106	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	# 119	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	113	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	116	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.4	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	102	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	109	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	116	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	123	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	126	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	101	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	132	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	81.9	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320345)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	102	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	95.5	76	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320345) - continued</b>									
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.0	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	92.8	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.0	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	94.5	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	78.5	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	87.6	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3320345)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	77.2	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	116	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	112	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	120	73.5	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3319967)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	77.2	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	102	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	97.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	95.1	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	99.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	77.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	77.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	96.1	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	76.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	53.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3319967)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3319967) - continued</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	107	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	84.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	79.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	103	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	106	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	97.1	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	95.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	91.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	105	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	99.8	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	75.3	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	96.5	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	86.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	85.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	91.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3319966)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	93.7	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	95.3	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320346)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.1	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3319966)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3319966) - continued</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	97.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.8	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	105	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320346)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.9	75	127	
<b>EP080: BTEXN (QCLot: 3320346)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	109	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.6	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.1	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	88.4	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.4	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	100	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323633)</b>							
ES1404385-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	118	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	99.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	96.8	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	# Not Determined	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>							
ES1404115-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323634)</b>							
ES1404385-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320466)</b>							
ES1404400-006	VP_MW01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.7	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320466) - continued</b>							
ES1404400-006	VP_MW01_0.5	EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.4	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320466)</b>							
ES1404400-006	VP_MW01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	85.8	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320051)</b>							
ES1404400-001	VO_MW06_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	84.2	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	75.9	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.9	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320051)</b>							
ES1404400-001	VO_MW06_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.0	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	86.4	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320050)</b>							
ES1404400-001	VO_MW06_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	95.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	94.4	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	93.9	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320336)</b>							
ES1404400-001	VO_MW06_0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320465)</b>							
ES1404404-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320050)</b>							
ES1404400-001	VO_MW06_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	118	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	88.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	87.6	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320336)</b>							
ES1404400-001	VO_MW06_0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.1	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320465)</b>							
ES1404404-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.2	70	130
<b>EP080: BTEXN (QCLot: 3320336)</b>							
ES1404400-001	VO_MW06_0.2	EP080: Benzene	71-43-2	2.5 mg/kg	73.9	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	96.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.3	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.8	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	75.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	94.4	70	130





Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
						Low	High
<b>EP080: BTEXN (QCLot: 3320465)</b>							
ES1404404-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	110	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.2	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.0	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	84.6	70	130
<b>Sub-Matrix: WATER</b>							
				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
						Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3324368)</b>							
EP1401577-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	90.1	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	81.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.7	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3324369)</b>							
EP1401594-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.7	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320345)</b>							
ES1404147-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	89.5	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	102	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320345)</b>							
ES1404147-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	118	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320346)</b>							
ES1404147-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320346)</b>							
ES1404147-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	70	130
<b>EP080: BTEXN (QCLot: 3320346)</b>							
ES1404147-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	93.8	70	130
		EP080: Toluene	108-88-3	25 µg/L	98.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	70	130
			106-42-3				



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report					
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
								Low	High
<b>EP080: BTEXN (QCLot: 3320346) - continued</b>									
ES1404147-001		Anonymous		EP080: ortho-Xylene	95-47-6	25 µg/L	110	70	130
				EP080: Naphthalene	91-20-3	25 µg/L	113	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
							MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320050)</b>												
ES1404400-001		VO_MW06_0.2		EP071: C10 - C14 Fraction	----	640 mg/kg	95.2	----	73	137	----	----
				EP071: C15 - C28 Fraction	----	3140 mg/kg	94.4	----	53	131	----	----
				EP071: C29 - C36 Fraction	----	2860 mg/kg	93.9	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320050)</b>												
ES1404400-001		VO_MW06_0.2		EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	118	----	73	137	----	----
				EP071: >C16 - C34 Fraction	----	4800 mg/kg	88.5	----	53	131	----	----
				EP071: >C34 - C40 Fraction	----	2400 mg/kg	87.6	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3320051)</b>												
ES1404400-001		VO_MW06_0.2		EP075(SIM): Phenol	108-95-2	10 mg/kg	84.2	----	70	130	----	----
				EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	75.9	----	70	130	----	----
				EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.5	----	60	130	----	----
				EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.9	----	70	130	----	----
				EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3320051)</b>												
ES1404400-001		VO_MW06_0.2		EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.0	----	70	130	----	----
				EP075(SIM): Pyrene	129-00-0	10 mg/kg	86.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320336)</b>												
ES1404400-001		VO_MW06_0.2		EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320336)</b>												
ES1404400-001		VO_MW06_0.2		EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.1	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3320336)</b>												
ES1404400-001		VO_MW06_0.2		EP080: Benzene	71-43-2	2.5 mg/kg	73.9	----	70	130	----	----
				EP080: Toluene	108-88-3	2.5 mg/kg	96.8	----	70	130	----	----
				EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.3	----	70	130	----	----
				EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.8	----	70	130	----	----
				EP080: ortho-Xylene	95-47-6	2.5 mg/kg	75.9	----	70	130	----	----



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080: BTEXN (QCLot: 3320336) - continued</b>											
ES1404400-001	VO_MW06_0.2	EP080: Naphthalene	91-20-3	2.5 mg/kg	94.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320465)</b>											
ES1404404-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320465)</b>											
ES1404404-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.2	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3320465)</b>											
ES1404404-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	110	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	84.6	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320466)</b>											
ES1404400-006	VP_MW01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.7	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.4	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320466)</b>											
ES1404400-006	VP_MW01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	85.8	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323632)</b>											
ES1404115-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.8	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3323633)</b>											
ES1404385-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	106	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	118	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	99.5	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	111	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	96.8	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	# Not Determined	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3323634)</b>											
ES1404385-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.6	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320345)</b>											
ES1404147-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	89.5	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3320345) - continued</b>											
ES1404147-001	Anonymous	EP074: Trichloroethene	79-01-6	25 µg/L	102	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3320345)</b>											
ES1404147-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	118	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3320346)</b>											
ES1404147-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3320346)</b>											
ES1404147-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3320346)</b>											
ES1404147-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	93.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	98.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	110	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	113	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3324368)</b>											
EP1401577-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	90.1	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	81.6	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.7	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	----	70	130	----	----	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3324369)</b>											
EP1401594-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.7	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404400</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 28-FEB-2014
C-O-C number	: ----	Issue Date	: 11-MAR-2014
Sampler	: RP	No. of samples received	: 51
Order number	: 0237747	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	----	----	----	03-MAR-2014	13-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VO_MW06_0.2, VO_MW04_0.2, VP_SB04_0.2, VP_SB06_0.5	VO_MW05_0.2, VP_MW01_0.2, VP_SB05_0.2,	27-FEB-2014	---	26-AUG-2014	----	11-MAR-2014	07-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	05-MAR-2014	26-AUG-2014	✓	06-MAR-2014	26-AUG-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	05-MAR-2014	27-MAR-2014	✓	07-MAR-2014	27-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b>								
VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	05-MAR-2014	12-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	06-MAR-2014	✓	05-MAR-2014	06-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	05-MAR-2014	12-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW06_0.2, VO_MW04_0.5, VP_SB04_0.5, VP_SB05_1.0(TOC), VU_MW20_9.0, D01_270214_CM,	VO_MW05_0.2, VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5, VO_MW09_2.0, VO_MW09_8.0	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	05-MAR-2014	12-APR-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> T_SP14, TSC	BLANK,	25-FEB-2014	03-MAR-2014	11-MAR-2014	✓	06-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC),	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	05-MAR-2014	13-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW06_0.2, VO_MW04_0.5, VO_MW09_2.0, VO_MW09_8.0	VO_MW05_0.2, VU_MW20_9.0, D01_270214_CM,	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	06-MAR-2014	13-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLANK	25-FEB-2014	03-MAR-2014	11-MAR-2014	✓	06-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_MW01_0.5, DO1_270214_RP, VP_SB06_0.5	VP_SB04_0.5, VP_SB05_1.0(TOC), 27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	05-MAR-2014	13-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW06_0.2, VO_MW04_0.5, VO_MW09_2.0, VO_MW09_8.0	VO_MW05_0.2, VU_MW20_9.0, D01_270214_CM, 27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	06-MAR-2014	13-MAR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> R01_270214	27-FEB-2014	---	26-AUG-2014	----	06-MAR-2014	26-AUG-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> R01_270214	27-FEB-2014	---	27-MAR-2014	----	07-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_270214	27-FEB-2014	04-MAR-2014	06-MAR-2014	✓	06-MAR-2014	13-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_270214	27-FEB-2014	04-MAR-2014	06-MAR-2014	✓	06-MAR-2014	13-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_270214	27-FEB-2014	04-MAR-2014	06-MAR-2014	✓	06-MAR-2014	13-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_270214	27-FEB-2014	03-MAR-2014	13-MAR-2014	✓	03-MAR-2014	13-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	27	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	19	15.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	27	7.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	27	7.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	27	7.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP) - Continued</b>							
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG005T: Total Metals by ICP-AES	ES1404385-001	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074E: Halogenated Aliphatic Compounds	3965458-002	----	Dibromomethane	74-95-3	119 %	74-118%	Recovery greater than upper control limit
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	EP1401577-003	Anonymous	Copper	7440-50-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG020F: Dissolved Metals by ICP-MS	EP1401577-003	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1404400-013	R01_270214	Phenol-d6	13127-88-3	44.1 %	10.0-44 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1404400**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : RP</b></p>	<p><b>Page : 1 of 4</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V2)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 28-FEB-2014</b></p> <p><b>Client Requested Due Date : 10-MAR-2014</b></p>	<p><b>Issue Date : 03-MAR-2014 09:17</b></p> <p><b>Scheduled Reporting Date : <b>10-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 4 HARDS</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 9.8°C - Ice present</b></p> <p><b>No. of samples received : 51</b></p> <p><b>No. of samples analysed : 20</b></p>
---	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01\_270214\_RP will be forwarded to Envirolab as per COC.**
- **Sample ID VO\_MW05\_1.5 received as VO\_MW05\_1.0 on jar, lab will follow the jar ID.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200 Asbestos Identification in Soils	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1404400-001	27-FEB-2014 08:45	VO_MW06_0.2		✓			✓		✓	
ES1404400-002	27-FEB-2014 09:30	VO_MW05_0.2		✓			✓		✓	
ES1404400-003	27-FEB-2014 10:30	VO_MW04_0.2		✓						
ES1404400-004	27-FEB-2014 10:30	VO_MW04_0.5					✓		✓	
ES1404400-005	27-FEB-2014 11:20	VP_MW01_0.2		✓						
ES1404400-006	27-FEB-2014 11:20	VP_MW01_0.5			✓					✓
ES1404400-007	27-FEB-2014 12:00	VP_SB04_0.2		✓						
ES1404400-008	27-FEB-2014 12:00	VP_SB04_0.5			✓					✓
ES1404400-009	27-FEB-2014 12:00	DO1_270214_RP			✓					✓
ES1404400-010	27-FEB-2014 15:00	VP_SB05_0.2		✓						
ES1404400-011	27-FEB-2014 15:00	VP_SB05_1.0(TOC)			✓					✓
ES1404400-012	27-FEB-2014 15:30	VP_SB06_0.5		✓	✓					✓
ES1404400-014	27-FEB-2014 15:00	VU_MW20_9.0								✓
ES1404400-015	27-FEB-2014 15:00	VO_MW09_2.0					✓		✓	
ES1404400-016	27-FEB-2014 15:00	D01_270214_CM					✓		✓	
ES1404400-017	27-FEB-2014 15:00	VO_MW09_8.0					✓		✓	
ES1404400-018	27-FEB-2014 08:45	VO_MW06_0.5	✓							
ES1404400-019	27-FEB-2014 08:45	VO_MW06_1.0	✓							
ES1404400-020	27-FEB-2014 08:45	VO_MW06_1.5	✓							
ES1404400-021	27-FEB-2014 09:30	VO_MW05_0.5	✓							
ES1404400-022	27-FEB-2014 09:30	VO_MW05_1.0	✓							
ES1404400-023	27-FEB-2014 10:30	VO_MW04_1.0	✓							
ES1404400-024	27-FEB-2014 10:30	VO_MW04_1.5	✓							
ES1404400-025	27-FEB-2014 12:00	VP_SB04_1.0	✓							
ES1404400-026	27-FEB-2014 12:00	VP_SB04_1.5	✓							
ES1404400-027	27-FEB-2014 15:00	VP_SB05_0.5	✓							
ES1404400-028	27-FEB-2014 15:00	VP_SB05_1.5	✓							
ES1404400-029	27-FEB-2014 15:30	VP_SB06_0.2	✓							
ES1404400-030	27-FEB-2014 15:30	VP_SB06_1.5	✓							
ES1404400-031	25-FEB-2014 15:00	T_SP14				✓				
ES1404400-032	25-FEB-2014 15:00	BLANK						✓		
ES1404400-033	25-FEB-2014 15:00	TSC				✓				
ES1404400-034	27-FEB-2014 15:00	VU_MW20_2.0	✓							
ES1404400-035	27-FEB-2014 15:00	VU_MW20_3.0	✓							
ES1404400-036	27-FEB-2014 15:00	VU_MW20_4.0	✓							



			(On Hold) SOIL No analysis requested														
				SOIL - EA200	Asbestos Identification in Soils	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP080	BTEXN	SOIL - S-03	15 Metals (MEPM 2013 Suite -incl. Digestion)	SOIL - S-18 (NO MOIST)	TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24	TRH/BTEXN/PAH + Phenols	SOIL - S-27	TRH/BTEXN/PAH/Phenols/8Metals
ES1404400-037	27-FEB-2014 15:00	VU_MW20_5.0	✓														
ES1404400-038	27-FEB-2014 15:00	VU_MW20_7.0	✓														
ES1404400-039	27-FEB-2014 15:00	VU_MW20_11.0	✓														
ES1404400-040	27-FEB-2014 15:00	VO_MW11_2.0	✓														
ES1404400-041	27-FEB-2014 15:00	VO_MW11_3.0	✓														
ES1404400-042	27-FEB-2014 15:00	VO_MW11_4.0	✓														
ES1404400-043	27-FEB-2014 15:00	VO_MW11_5.0	✓														
ES1404400-044	27-FEB-2014 15:00	VO_MW11_6.0	✓														
ES1404400-045	27-FEB-2014 15:00	VO_MW11_8.0	✓														
ES1404400-046	27-FEB-2014 15:00	VO_MW11_9.0	✓														
ES1404400-047	27-FEB-2014 15:00	VO_MW09_3.0	✓														
ES1404400-048	27-FEB-2014 15:00	VO_MW09_4.0	✓														
ES1404400-049	27-FEB-2014 15:00	VO_MW09_5.0	✓														
ES1404400-050	27-FEB-2014 15:00	VO_MW09_6.0	✓														
ES1404400-051	27-FEB-2014 15:00	VO_MW09_9.0	✓														

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

			WATER - EP074 (water) Volatile Organic Compounds	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1404400-013	27-FEB-2014 15:00	R01_270214	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## *Requested Deliverables*

### **JOHN EWING**

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### **SYMPHONY DELTACOAST**

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### **THE ACCOUNTS PAYABLE**

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
 Organised By / Date: *ALS New Castle*  
 Relinquished By / Date: *23/7/10*  
 Courier: *ENVIROLAB* 101-2702 14-RR

ENT: ERM  
 FICE: PYRMONT  
 SUBJECT: VALES POINT POWER STATION  
 DER NUMBER: 0237747  
 E MANAGER: JOHN EWING  
 VPLER: *R Phocoe*  
 C emailed to ALS? ( YES / NO )  
 all Reports to (will default to PM if no other addresses are listed): *sydney.deltacoast@erm.com*  
 all Invoice to (will default to PM if no other addresses are listed): *sydney.deltacoast@erm.com*

FOR LABORATORY USE ONLY (Circle)  
 Primary Seal Intact? (Yes/No)  
 Free ice / frozen ice bricks present upon receipt? (Yes/No)  
 Random Sample Temperature on Receipt: *9.8C*  
 Other comment:

RECEIVED BY: *Sa E* DATE/TIME: *28/2/14*  
 RELINQUISHED BY: *Sa E* DATE/TIME: *28/2/14 17:20*

CONTACT PH: 0401 776 290  
 SAMPLER MOBILE: *0401 591 470*  
 EDD FORMAT (or default):

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfilled bottle required) or Dissolved (field filtered bottle required).	Additional Information	
01	VO-MW06-0.2	27.2.14 0845	S	1 x zip lock bag, 1 x non-pneum jar	1899 jar	1	X VOC X PHENOLS (S-24) X TP/HT/EXP/PAH X 13 METALS (S-3) X 8 METALS (S-2)	Ultra Trace Metals Ultra Trace PAH EC Saturated Paste Leao P/SD sieve / TOC PH/CEC P/ROS/PFOA PCB	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc. <i>HOLD</i>
02	VO-MW06-0.5		S						<i>HOLD</i>
03	VO-MW06-1.0		S						<i>HOLD</i>
04	VO-MW05-0.2	27.2.14 0830	S	1 x zip lock bag, 1 x non-pneum jar		1	X VOC X PHENOLS (S-24) X TP/HT/EXP/PAH X 13 METALS (S-3) X 8 METALS (S-2)		<i>HOLD</i>
05	VO-MW05-0.5		S						<i>HOLD</i>
06	VO-MW05-1.5		S						<i>HOLD</i>
07	VO-MW04-0.2	27.2.14 1030	S	1 x zip lock bag, 1 x non-pneum jar		1	X VOC X PHENOLS (S-24) X TP/HT/EXP/PAH X 13 METALS (S-3) X 8 METALS (S-2)		<i>HOLD</i>
08	VO-MW04-0.5		S						<i>HOLD</i>
09	VO-MW04-1.0		S						<i>HOLD</i>
10	VP-MW01-0.2	27.2.14 1120	S	1 x zip lock bag, 1 x non-pneum jar		1	X VOC X PHENOLS (S-24) X TP/HT/EXP/PAH X 13 METALS (S-3) X 8 METALS (S-2)		<i>HOLD</i>

Environmental Division  
 Sydney  
 Work Order  
**ES1404400**

Telephone : + 61-2-8784 8555

Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved  
 VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved; Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sticlic Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag







**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**ENT:** ERM  
**FILE:** PYRMONT  
**OBJECT:** VALES POINT POWER STATION  
**DER NUMBER:** 0237747  
**E MANAGER:** JOHN EWING  
**WPLER:** R. Procece  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 591 4770  
**RELINQUISHED BY:** *Sam E*  
**DATE/TIME:** 28/2/14  
**RECEIVED BY:** *Sam E*  
**DATE/TIME:** 28/2/14 1720

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date);  Non Standard or Urgent TAT (List due date)  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
**ALS QUOTE NO.:** SY-050-14

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal Intact?  Yes  No  
 (Free Ice) Frozen Ice bricks present upon receipt?  Yes  No  
 Random Sample Temperature on Receipt: 9.8 °C  
 Other comment:

**RELINQUISHED BY:** *Sam E*  
**DATE/TIME:** 28/2/14 1720

**RECEIVED BY:** *Sam E*  
**DATE/TIME:** 28/2/14 1720

**RECEIVED BY:** *Sam E*  
**DATE/TIME:** 28/2/14 1720

**RECEIVED BY:** *Sam E*  
**DATE/TIME:** 28/2/14 1720

ALS JSE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).													Additional Information
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to TOTAL CONTAINERS)	8 METALS (S-2)	13 METALS (S-3)	TPH/TEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	PH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	
12	VP-S806-0.5	27-2-14 1530	S	1 x 2 litre rock bag	1 BAG	X		X	X									
13	VP-S806-1.5	27-2-14 1530	S	1 x non preservative jar	1 JAR	X		X	X									
14	T-Spij	25-2-14	S	1 jar	1													HOLD
15	Blank	25-2-14	S	1 jar	1													BTEX only
16	ROI-270214	27-2-14	S	2 vials, 1 Amber, 1 metals	4	X		X	X									TRHC6-C9 + BTEX
17	TSC		S															
18			S															
19			S															
20			S															
21			S															
22			S															

**Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved CRC; SH = Sodium Hydroxide/Ca Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic; VOA Vial HCl Preserved; VG = VOA Vial Sodium Bisphosphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**ENT:** ERM  
**FILE:** PYRMONT  
**SUBJECT:** VALES POINT POWER STATION  
**DER NUMBER:** 0237747  
**E MANAGER:** JOHN EWING  
**AMPLER:** R. Pascoe  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 591 470  
**EDD FORMAT (or default):** SAN 6-  
**C emailed to ALS:** ( ) / ( )  
**all Reports to (will default to PM if no other addresses are listed):** symphony.della.coast@erm.com  
**all Invoices to (will default to PM if no other addresses are listed):** symphony.della.coast@erm.com

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  Non Standard or Urgent TAT (List due date):

**ALS QUOTE NO.:** SY-050-14

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal Intact?  Yes  No  
 Free Ice / Frozen Ice bricks present upon receipt?  Yes  No  
 Random Sample Temperature on Receipt: 9.8°C  
 Other comment:

**RECEIVED BY:** [Signature]  
**DATE/TIME:** 28/2/14 17:20  
**RELINQUISHED BY:** [Signature]  
**DATE/TIME:** 28/2/14 17:20

**CONTAINER INFORMATION**  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

ANALYSIS REQUIRED	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH / PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
TOTAL CONTAINERS	1												
TYPE & PRESERVATIVE codes below	1 Jar												
MATRIX	S												
DATE / TIME	27.2.14												
SAMPLE ID	-T01-270214-RP												
SAMPLE DETAILS	MATRIX: SOLID (S) WATER (W)												
ALS USE													
AB ID													Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
													Please fwd to EnviroLab.

**Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved Plastic; ORG = Nitric Preserved Plastic; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.





**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date): **FOR LABORATORY USE ONLY (Circle)**  
 (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)  Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:** SY-050-14  
**RECEIVED BY:** *See J. J. A. S.*  
**DATE/TIME:** 28/12/14  
**RELINQUISHED BY:** *Sam E.*  
**DATE/TIME:** 28/12/14

**FOR LABORATORY USE ONLY (Circle)**  
 Custody-Seal Intact?  Yes  No  
 Free Ice / Frozen Ice bricks present upon receipt?  Yes  No  
 Random Sample Temperature on Receipt: 9.8 °C  
 Other comment:

**RECEIVED BY:** \_\_\_\_\_  
**DATE/TIME:** \_\_\_\_\_

**RELINQUISHED BY:** \_\_\_\_\_  
**DATE/TIME:** \_\_\_\_\_

**RECEIVED BY:** \_\_\_\_\_  
**DATE/TIME:** \_\_\_\_\_

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).											Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to CONTAINERS)	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	PH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH
1	VO-MW11-8.0	27/2/14	S	for bag VI, 1	2		X										HOLD
2	VO-MW11-9.0		S	1, 1	2												HOLD
3	VO-MW09-2.0		S	1, 1	2		X										4 sample
4	DOI-270214-CM		S	1, 1	2		X										2 duplicate
5	VO-MW09-3.0		S	1, 1	2												HOLD
6	VO-MW09-4.0		S	1, 1	2												HOLD
7	VO-MW09-5.0		S	1, 1	2												HOLD
8	VO-MW09-6.0		S	1, 1	2			X									HOLD
9	VO-MW09-8.0		S	1, 1	2												HOLD
10	VO-MW09-9.0		S	1, 1	2												HOLD

**CONTAINERS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; VOA Vial HCl Preserved; VB = VOA Vial Sodium Sulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; F = Formaldehyde Preserved Glass; Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solis; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1404580</b>	Page	: 1 of 19
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 04-MAR-2014
C-O-C number	: ----	Issue Date	: 14-MAR-2014
Sampler	: RP	No. of samples received	: 22
Site	: ----	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.results have been confirmed by re-extraction and re-analysis.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	53	----	----	----
+150µm	----	1	%	----	43	----	----	----
+300µm	----	1	%	----	26	----	----	----
+425µm	----	1	%	----	18	----	----	----
+600µm	----	1	%	----	12	----	----	----
+1180µm	----	1	%	----	7	----	----	----
+2.36mm	----	1	%	----	5	----	----	----
+4.75mm	----	1	%	----	3	----	----	----
+9.5mm	----	1	%	----	<1	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	5.2	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	15.0	----	16.6	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	47	----	----	----
Sand (>75 µm)	----	1	%	----	48	----	----	----
Gravel (>2mm)	----	1	%	----	5	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	543	----	534	----	707
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.543	----	0.534	----	0.707
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.9	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	3.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.2	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	1.3	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	6.2	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	3	----	2	----
Copper	7440-50-8	5	mg/kg	----	<5	----	<5	----
Lead	7439-92-1	5	mg/kg	----	5	----	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	<5	----	7	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.08	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP074B: Oxygenated Compounds - Continued</b>								
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	<b>97.3</b>	----	<b>95.9</b>	----
Toluene-D8	2037-26-5	0.1	%	----	<b>102</b>	----	<b>104</b>	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	<b>82.7</b>	----	<b>85.2</b>	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>90.1</b>	----	<b>86.1</b>	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	<b>89.7</b>	----	<b>86.3</b>	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	<b>81.9</b>	----	<b>81.8</b>	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	<b>91.5</b>	----	<b>89.7</b>	----
Anthracene-d10	1719-06-8	0.1	%	----	<b>97.1</b>	----	<b>96.1</b>	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	<b>87.8</b>	----	<b>86.6</b>	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	<b>93.4</b>	----	<b>92.1</b>	----
Toluene-D8	2037-26-5	0.1	%	----	<b>94.0</b>	----	<b>95.9</b>	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	<b>86.1</b>	----	<b>87.1</b>	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.5	19.5	19.3	----	12.2
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----
Asbestos Type	1332-21-4	-	--	----	----	----	-	----
Sample weight (dry)	----	0.01	g	----	----	----	873	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	C.OWLER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	0.873	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	----	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	6	<5	<5	----	<5
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	20	4	4	----	20
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	<5
Lead	7439-92-1	5	mg/kg	8	<5	<5	----	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	54	19	----	----	53
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
				ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.6	83.5	84.3	----	82.8
2-Chlorophenol-D4	93951-73-6	0.1	%	82.0	81.9	85.6	----	82.5
2,4,6-Tribromophenol	118-79-6	0.1	%	77.9	77.7	80.2	----	75.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.6	83.2	89.5	----	85.3
Anthracene-d10	1719-06-8	0.1	%	91.4	93.5	95.6	----	90.4
4-Terphenyl-d14	1718-51-0	0.1	%	82.9	82.5	84.8	----	81.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	89.0	112	----	102
Toluene-D8	2037-26-5	0.1	%	101	94.6	109	----	106



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	V0_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
Client sampling date / time	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011

Compound	CAS Number	LOR	Unit	V0_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	83.2	97.8	91.4	----	101



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
				ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	20.4	17.4	19.6	24.7	21.6
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	4	4	21	20
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	6	6	11	9
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	42	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	6	10
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	84.0	84.3	84.8	87.6	86.6
2-Chlorophenol-D4	93951-73-6	0.1	%	84.8	84.8	84.8	88.1	86.1
2,4,6-Tribromophenol	118-79-6	0.1	%	77.9	79.7	80.5	86.6	82.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.5	88.6	89.2	92.0	86.6
Anthracene-d10	1719-06-8	0.1	%	93.6	93.0	94.9	99.6	94.4
4-Terphenyl-d14	1718-51-0	0.1	%	84.5	83.7	85.2	89.2	88.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.7	79.6	108	85.0	83.8
Toluene-D8	2037-26-5	0.1	%	102	128	94.5	96.0	103
4-Bromofluorobenzene	460-00-4	0.1	%	98.1	98.2	78.0	93.1	94.0



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	13.3	13.3	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	20	<10	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	<2	5	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	----	<5	<5	----
Lead	7439-92-1	5	mg/kg	----	----	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	<5	7	----
Zinc	7440-66-6	5	mg/kg	----	----	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<b>86</b>	<10	<10	<b>75</b>
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<b>99</b>	<10	<10	<b>86</b>
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<b>55</b>	<10	<10	<b>47</b>
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.7	<0.2	<0.2	0.6
Toluene	108-88-3	0.5	mg/kg	<0.5	21.4	<0.5	<0.5	18.6
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.8	<0.5	<0.5	2.4
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	13.8	<0.5	<0.5	12.2
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	5.3	<0.5	<0.5	4.8
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	19.1	<0.5	<0.5	17.0
^ Sum of BTEX	----	0.2	mg/kg	<0.2	44.0	<0.2	<0.2	38.6
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	85.4	85.4	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	86.2	86.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	80.7	78.9	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	88.0	86.4	----
Anthracene-d10	1719-06-8	0.1	%	----	----	98.3	95.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	88.9	85.4	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.9	86.6	114	118	93.7
Toluene-D8	2037-26-5	0.1	%	99.3	92.5	106	103	92.1
4-Bromofluorobenzene	460-00-4	0.1	%	80.7	84.9	82.4	82.4	92.8

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VP_SB08_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation
EA200: Description	VP_SB07_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with some brown rocks plus a trace of vegetation
EA200: Description	VO_MW16_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation
EA200: Description	VO_SB03_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1404580</b>	Page	: 1 of 18
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 04-MAR-2014
C-O-C number	: ----	Issue Date	: 14-MAR-2014
Sampler	: RP	No. of samples received	: 22
Order number	: 0237747	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3330651)</b>									
ES1404586-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	2.8	3.1	10.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3324906)</b>									
ES1404580-006	VO_MW16_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.5	13.5	13.5	0% - 50%
ES1404580-021	VO_MW20_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.3	14.2	6.4	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3329211)</b>									
ES1404580-002	VP_SB08_0.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.9	0.9	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.8	3.9	3.4	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.3	1.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	6.2	6.4	4.1	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3332613)</b>									
ES1404580-002	VP_SB08_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	160	150	12.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	6	18	95.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	25	16	46.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1404739-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3332613) - continued</b>									
ES1404739-003	Anonymous	EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3333456)</b>									
ES1404580-015	D02_030314_RP	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	300	310	5.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	36	42	16.8	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	13	17	26.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1404848-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	260	260	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	17	14	19.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	5	37.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	72	77	7.0	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	81	79	1.8	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	653	633	3.2	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	160	138	14.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	42	30	35.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	574	520	10.0	0% - 20%
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3332614)</b>									
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404739-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3333457)</b>									
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404848-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3328409)</b>									
ES1404580-002	VP_SB08_0.5	EP003: Total Organic Carbon	----	0.02	%	0.08	0.06	17.4	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3324719) - continued</b>									
ES1404580-002	VP_SB08_0.5	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3325850)</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3325850) - continued</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3325850)</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3325850) - continued</b>									
ES1404580-017	VU_MW18_0.9	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3325849)</b>									
ES1404580-002	VP_SB08_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3325849)</b>									
ES1404580-002	VP_SB08_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3324717) - continued</b>									
ES1404544-001	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3329211)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	114	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	114	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	111	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	113	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	127	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	103	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	122	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	107	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	111	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	113	95	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456) - continued</b>									
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	113	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.1	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.0	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3328409)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	8.4 %	109	70	130	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3324719)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	97.2	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.8	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	104	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	97.9	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	106	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3324719)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	91.0	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	108	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	93.7	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	102	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3324719)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	115	54	126	
<b>EP074D: Fumigants (QCLot: 3324719)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	122	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	105	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	107	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	96.0	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	65.2	30	148	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719) - continued</b>									
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	85.5	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	68.7	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	90.8	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	103	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	102	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	101	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	106	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	101	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	107	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.7	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	113	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	105	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	114	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.4	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	116	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	116	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.7	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	107	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1,1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.2	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	103	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	113	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	101	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	94.1	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	91.9	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	102	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	101	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	98.9	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	63	129	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719) - continued</b>									
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	95.2	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	95.2	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3324719)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	109	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	99.4	60	126	
<b>EP074H: Naphthalene (QCLot: 3324719)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	91.8	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	95.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	96.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	97.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.4	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	96.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	92.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	91.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	29.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	100	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	95.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.8	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	88.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.0	76	122	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850) - continued</b>									
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	90.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	92.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.3	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	87.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.1	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.1	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	75.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	96.7	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	96.4	63	131	
<b>EP080: BTEXN (QCLot: 3324717)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.3	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.1	62	138	
<b>EP080: BTEXN (QCLot: 3324718)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	74.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	76.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	79.5	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	84.6	62	138	



## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>							
ES1404580-002	VP_SB08_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.5	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	104	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	103	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>							
ES1404580-015	D02_030314_RP	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>							
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	90.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>							
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>							
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	109	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	102	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>							
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.0	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>							
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	20 mg/kg	102	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 mg/kg	100	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 mg/kg	101	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 mg/kg	102	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 mg/kg	97.3	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>							
ES1404580-002	VP_SB08_0.5	EP075(SIM): Acenaphthene	83-32-9	20 mg/kg	95.5	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850) - continued</b>								
ES1404580-002	VP_SB08_0.5	EP075(SIM): Pyrene	129-00-0	20 mg/kg	113	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.7	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>								
ES1404580-002	VP_SB08_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	89.7	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.5	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>								
ES1404580-002	VP_SB08_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.0	52	132	
<b>EP080: BTEXN (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.4	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	72.3	70	130			
<b>EP080: BTEXN (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	75.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.3	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	82.0	70	130			



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.1	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.4	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	72.3	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.7	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	75.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.3	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	82.0	----	70	130	----	----		
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>											
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	109	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	102	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>											
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>											
ES1404580-002	VP_SB08_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	89.7	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.5	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>											
ES1404580-002	VP_SB08_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.4	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.0	----	52	132	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>										
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	20 mg/kg	102	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 mg/kg	100	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 mg/kg	101	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 mg/kg	102	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 mg/kg	97.3	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>										
ES1404580-002	VP_SB08_0.5	EP075(SIM): Acenaphthene	83-32-9	20 mg/kg	95.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 mg/kg	113	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>										
ES1404580-002	VP_SB08_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.5	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	104	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	103	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>										
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	90.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>										
ES1404580-015	D02_030314_RP	EG005T: Arsenic	7440-38-2	50 mg/kg	103	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>										
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404580</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 04-MAR-2014
C-O-C number	: ----	Issue Date	: 14-MAR-2014
Sampler	: RP	No. of samples received	: 22
Order number	: 0237747	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
<b>Soil Glass Jar - Unpreserved (EA002)</b> VP_SB08_0.5	03-MAR-2014	10-MAR-2014	10-MAR-2014	✓	10-MAR-2014	10-MAR-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	----	----	----	05-MAR-2014	17-MAR-2014	✓
<b>EA150: Particle Sizing</b>							
<b>Snap Lock Bag (EA150)</b> VP_SB08_0.5	03-MAR-2014	---	30-AUG-2014	----	10-MAR-2014	03-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>							
<b>Snap Lock Bag (EA150)</b> VP_SB08_0.5	03-MAR-2014	---	30-AUG-2014	----	10-MAR-2014	03-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VP_SB08_0.2, VP_SB07_0.2, V0_MW16_0.2, VO_SB03_0.2	03-MAR-2014	---	30-AUG-2014	----	14-MAR-2014	10-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED007)</b> VP_SB08_0.5	03-MAR-2014	10-MAR-2014	31-MAR-2014	✓	10-MAR-2014	31-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, VP_SB07_0.5, D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5	03-MAR-2014	11-MAR-2014	30-AUG-2014	✓	11-MAR-2014	30-AUG-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0, VU_MW18_1.0, VO_MW10_2.0	03-MAR-2014	11-MAR-2014	30-AUG-2014	✓	12-MAR-2014	30-AUG-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0, VP_SB07_0.5, D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0	03-MAR-2014	11-MAR-2014	31-MAR-2014	✓	12-MAR-2014	31-MAR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VP_SB08_0.5	03-MAR-2014	07-MAR-2014	31-MAR-2014	✓	11-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0, VP_SB07_0.5, D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB08_0.5,	VP_SB07_0.5	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	06-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0,	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	07-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK, TSC	T.SP/3,	25-FEB-2014	05-MAR-2014	11-MAR-2014	✓	07-MAR-2014	11-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB08_0.5,	VP_SB07_0.5	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	06-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0,	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	07-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK, TSC	T.SP/3,	25-FEB-2014	05-MAR-2014	11-MAR-2014	✓	07-MAR-2014	11-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	3	33.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	20	5.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	36	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	22	13.6	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.

Page : 8 of 9  
Work Order : ES1404580  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method					
Laboratory Duplicates (DUP)					
pH (1:5)	1	20	5.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1404580</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : RP	<b>Page</b> : 1 of 3  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V2)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 04-MAR-2014 <b>Client Requested Due Date</b> : 14-MAR-2014	<b>Issue Date</b> : 05-MAR-2014 13:42 <b>Scheduled Reporting Date</b> : <b>14-MAR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 1 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 4.6°C - Ice present <b>No. of samples received</b> : 22 <b>No. of samples analysed</b> : 20
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane.**
- **Asbestos & PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01\_030314\_RP sent to Envirolab as per COC request.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from	SOIL - EA200 Asbestos Identification in Soils	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP071(V) TRH(V) Standard Limits of Reporting
ES1404580-001	03-MAR-2014 15:00	VP_SB08_0.2					✓			
ES1404580-002	03-MAR-2014 15:00	VP_SB08_0.5		✓	✓	✓		✓	✓	
ES1404580-003	03-MAR-2014 15:00	VP_SB07_0.2					✓			
ES1404580-005	03-MAR-2014 15:00	VO_MW16_0.2					✓			
ES1404580-008	03-MAR-2014 15:00	VU_MW17_0.2	✓							
ES1404580-010	03-MAR-2014 15:00	VO_SB03_0.2					✓			
ES1404580-013	03-MAR-2014 15:00	VU_MW18_0.2	✓							
ES1404580-019	25-FEB-2014 15:00	T.SP/3								✓
ES1404580-022	25-FEB-2014 15:00	TSC								✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1404580-002	03-MAR-2014 15:00	VP_SB08_0.5	✓	✓			✓
ES1404580-004	03-MAR-2014 15:00	VP_SB07_0.5	✓	✓			✓
ES1404580-006	03-MAR-2014 15:00	VO_MW16_0.5			✓		✓
ES1404580-007	03-MAR-2014 15:00	D01_030314_RP			✓		✓
ES1404580-009	03-MAR-2014 15:00	VU_MW17_0.5		✓			✓
ES1404580-011	03-MAR-2014 15:00	VO_SB03_0.5			✓		✓
ES1404580-012	03-MAR-2014 15:00	VO_SB03_1.0			✓		✓
ES1404580-014	03-MAR-2014 15:00	VU_MW18_0.5		✓			✓
ES1404580-015	03-MAR-2014 15:00	D02_030314_RP		✓			✓
ES1404580-016	03-MAR-2014 15:00	VU_MW18_1.0		✓			✓
ES1404580-017	03-MAR-2014 15:00	VU_MW18_0.9		✓			✓
ES1404580-018	25-FEB-2014 15:00	BLK				✓	
ES1404580-020	03-MAR-2014 15:00	VO_MW10_2.0			✓		✓
ES1404580-021	03-MAR-2014 15:00	VO_MW20_2.0			✓		✓



## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

#### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1404580</b> <b>Amendment</b> : <b>1</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : <b>JOHN EWING</b> <b>Address</b> : <b>GROUND FLOOR</b> <b>33 SAUNDERS STREET, PYRMONT NSW 2009</b> <b>LOCKED BAG 24</b> <b>BROADWAY NSW, AUSTRALIA 2007</b>  <b>E-mail</b> : <b>john.ewing@erm.com</b> <b>Telephone</b> : <b>+61 02 8584 8888</b> <b>Facsimile</b> : <b>+61 02 8584 8800</b> <b>Project</b> : <b>VALES POINT POWER STATION</b> <b>Order number</b> : <b>0237747</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>RP</b> <b>Site</b> : <b>----</b>  <b>Quote number</b> : <b>SY/050/14 V3</b>	<b>Page</b> : 1 of 19  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 04-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 22 <b>No. of samples analysed</b> : 20
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.results have been confirmed by re-extraction and re-analysis.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	53	----	----	----
+150µm	----	1	%	----	43	----	----	----
+300µm	----	1	%	----	26	----	----	----
+425µm	----	1	%	----	18	----	----	----
+600µm	----	1	%	----	12	----	----	----
+1180µm	----	1	%	----	7	----	----	----
+2.36mm	----	1	%	----	5	----	----	----
+4.75mm	----	1	%	----	3	----	----	----
+9.5mm	----	1	%	----	<1	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	5.2	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	15.0	----	16.6	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	47	----	----	----
Sand (>75 µm)	----	1	%	----	48	----	----	----
Gravel (>2mm)	----	1	%	----	5	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	543	----	534	----	707
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.543	----	0.534	----	0.707
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.9	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	3.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.2	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	1.3	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	6.2	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	3	----	2	----
Copper	7440-50-8	5	mg/kg	----	<5	----	<5	----
Lead	7439-92-1	5	mg/kg	----	5	----	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	<5	----	7	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.08	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP074B: Oxygenated Compounds - Continued</b>								
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB08_0.2	VP_SB08_0.5	VP_SB07_0.2	VP_SB07_0.5	V0_MW16_0.2
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-001	ES1404580-002	ES1404580-003	ES1404580-004	ES1404580-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	97.3	----	95.9	----
Toluene-D8	2037-26-5	0.1	%	----	102	----	104	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	82.7	----	85.2	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	90.1	----	86.1	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	89.7	----	86.3	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	81.9	----	81.8	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	91.5	----	89.7	----
Anthracene-d10	1719-06-8	0.1	%	----	97.1	----	96.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	87.8	----	86.6	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	93.4	----	92.1	----
Toluene-D8	2037-26-5	0.1	%	----	94.0	----	95.9	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	86.1	----	87.1	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.5	19.5	19.3	----	12.2
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----
Asbestos Type	1332-21-4	-	--	----	----	----	-	----
Sample weight (dry)	----	0.01	g	----	----	----	873	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	C.OWLER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	0.873	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	----	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	6	<5	<5	----	<5
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	20	4	4	----	20
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	<5
Lead	7439-92-1	5	mg/kg	8	<5	<5	----	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	54	19	----	----	53
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_0.5	D01_030314_RP	VU_MW17_0.5	VO_SB03_0.2	VO_SB03_0.5
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-006	ES1404580-007	ES1404580-009	ES1404580-010	ES1404580-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.6	83.5	84.3	----	82.8
2-Chlorophenol-D4	93951-73-6	0.1	%	82.0	81.9	85.6	----	82.5
2,4,6-Tribromophenol	118-79-6	0.1	%	77.9	77.7	80.2	----	75.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.6	83.2	89.5	----	85.3
Anthracene-d10	1719-06-8	0.1	%	91.4	93.5	95.6	----	90.4
4-Terphenyl-d14	1718-51-0	0.1	%	82.9	82.5	84.8	----	81.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	89.0	112	----	102
Toluene-D8	2037-26-5	0.1	%	101	94.6	109	----	106



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

	<b>V0_MW16_0.5</b>	<b>D01_030314_RP</b>	<b>VU_MW17_0.5</b>	<b>VO_SB03_0.2</b>	<b>VO_SB03_0.5</b>
	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
	<b>ES1404580-006</b>	<b>ES1404580-007</b>	<b>ES1404580-009</b>	<b>ES1404580-010</b>	<b>ES1404580-011</b>

Client sampling date / time

Compound	CAS Number	LOR	Unit					
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>83.2</b>	<b>97.8</b>	<b>91.4</b>	----	<b>101</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
				ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	20.4	17.4	19.6	24.7	21.6
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	4	4	21	20
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	6	6	11	9
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	42	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	6	10
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_SB03_1.0	VU_MW18_0.5	D02_030314_RP	VU_MW18_1.0	VU_MW18_0.9
				03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-012	ES1404580-014	ES1404580-015	ES1404580-016	ES1404580-017
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	84.0	84.3	84.8	87.6	86.6
2-Chlorophenol-D4	93951-73-6	0.1	%	84.8	84.8	84.8	88.1	86.1
2,4,6-Tribromophenol	118-79-6	0.1	%	77.9	79.7	80.5	86.6	82.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.5	88.6	89.2	92.0	86.6
Anthracene-d10	1719-06-8	0.1	%	93.6	93.0	94.9	99.6	94.4
4-Terphenyl-d14	1718-51-0	0.1	%	84.5	83.7	85.2	89.2	88.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.7	79.6	108	85.0	83.8
Toluene-D8	2037-26-5	0.1	%	102	128	94.5	96.0	103
4-Bromofluorobenzene	460-00-4	0.1	%	98.1	98.2	78.0	93.1	94.0



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	13.3	13.3	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	20	<10	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	<2	5	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	----	<5	<5	----
Lead	7439-92-1	5	mg/kg	----	----	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	<5	7	----
Zinc	7440-66-6	5	mg/kg	----	----	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<b>86</b>	<10	<10	<b>75</b>
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<b>99</b>	<10	<10	<b>86</b>
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<b>55</b>	<10	<10	<b>47</b>
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	T.SP/3	VO_MW10_2.0	VO_MW20_2.0	TSC
				25-FEB-2014 15:00	25-FEB-2014 15:00	03-MAR-2014 15:00	03-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404580-018	ES1404580-019	ES1404580-020	ES1404580-021	ES1404580-022
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.7	<0.2	<0.2	0.6
Toluene	108-88-3	0.5	mg/kg	<0.5	21.4	<0.5	<0.5	18.6
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.8	<0.5	<0.5	2.4
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	13.8	<0.5	<0.5	12.2
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	5.3	<0.5	<0.5	4.8
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	19.1	<0.5	<0.5	17.0
Sum of BTEX	----	0.2	mg/kg	<0.2	44.0	<0.2	<0.2	38.6
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	85.4	85.4	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	86.2	86.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	80.7	78.9	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	88.0	86.4	----
Anthracene-d10	1719-06-8	0.1	%	----	----	98.3	95.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	88.9	85.4	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.9	86.6	114	118	93.7
Toluene-D8	2037-26-5	0.1	%	99.3	92.5	106	103	92.1
4-Bromofluorobenzene	460-00-4	0.1	%	80.7	84.9	82.4	82.4	92.8

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VP_SB08_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation
EA200: Description	VP_SB07_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with some brown rocks plus a trace of vegetation
EA200: Description	VO_MW16_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation
EA200: Description	VO_SB03_0.2 - 03-MAR-2014 15:00	Pale brown clay soil with a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

**QUALITY CONTROL REPORT**

<b>Work Order</b>	<b>: ES1404580</b>	Page	: 1 of 18
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	<b>: GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>C-O-C number</b>	: ----	<b>Date Samples Received</b>	: 04-MAR-2014
<b>Sampler</b>	: RP	<b>Issue Date</b>	: 26-MAR-2014
<b>Order number</b>	: 0237747		
<b>Quote number</b>	: SY/050/14 V3	<b>No. of samples received</b>	: 22
		<b>No. of samples analysed</b>	: 20

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3330651)</b>									
ES1404586-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	2.8	3.1	10.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3324906)</b>									
ES1404580-006	VO_MW16_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.5	13.5	13.5	0% - 50%
ES1404580-021	VO_MW20_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.3	14.2	6.4	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3329211)</b>									
ES1404580-002	VP_SB08_0.5	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.9	0.9	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.8	3.9	3.4	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.3	1.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	6.2	6.4	4.1	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3332613)</b>									
ES1404580-002	VP_SB08_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	160	150	12.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	6	18	95.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	25	16	46.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1404739-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3332613) - continued</b>									
ES1404739-003	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3333456)</b>									
ES1404580-015	D02_030314_RP	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	300	310	5.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	36	42	16.8	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	13	17	26.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1404848-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	260	260	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	17	14	19.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	5	37.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	72	77	7.0	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	81	79	1.8	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	653	633	3.2	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	160	138	14.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	42	30	35.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	574	520	10.0	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3332614)</b>									
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404739-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3333457)</b>									
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404848-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3328409)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3328409) - continued</b>									
ES1404580-002	VP_SB08_0.5	EP003: Total Organic Carbon	----	0.02	%	0.08	0.06	17.4	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3324719) - continued</b>									
ES1404580-002	VP_SB08_0.5	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3324719)</b>									
ES1404580-002	VP_SB08_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3325850)</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3325850) - continued</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3325850)</b>									
ES1404580-002	VP_SB08_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3325850) - continued</b>									
ES1404580-017	VU_MW18_0.9	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3325849)</b>									
ES1404580-002	VP_SB08_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3325849)</b>									
ES1404580-002	VP_SB08_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1404580-017	VU_MW18_0.9	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3324717)</b>									
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1404580-020	VO_MW10_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3324718)</b>									
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3329211)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	114	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	114	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	111	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	113	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	127	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	103	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	122	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	107	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	111	75	131	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456) - continued</b>								
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	113	95	129
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	113	81	133
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.1	66	112
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.0	66	112
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3328409)</b>								
EP003: Total Organic Carbon	----	0.02	%	<0.02	8.4 %	109	70	130
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3324719)</b>								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	64	126
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	97.2	66	128
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	101	63	129
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.8	63	129
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	104	64	130
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	63	129
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	97.9	63	129
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	62	130
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	106	61	131
<b>EP074B: Oxygenated Compounds (QCLot: 3324719)</b>								
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	91.0	29.6	156
		5	mg/kg	<5	----	----	----	----
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	108	58	136
		5	mg/kg	<5	----	----	----	----
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	93.7	54	138
		5	mg/kg	<5	----	----	----	----
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	102	54	136
		5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds (QCLot: 3324719)</b>								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	115	54	126
<b>EP074D: Fumigants (QCLot: 3324719)</b>								
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	122	55	133
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	105	69	127
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	107	54	124
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	51	125
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	96.0	66	126
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>								
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	65.2	30	148
		5	mg/kg	<5	----	----	----	----



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719) - continued</b>									
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	85.5	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	68.7	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	90.8	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	103	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	102	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	101	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	106	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	101	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	107	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.7	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	113	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	105	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	114	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.4	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	116	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	116	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.7	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	107	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1,1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.2	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	103	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	113	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	101	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	94.1	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	91.9	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	102	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	101	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	98.9	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	63	129	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719) - continued</b>									
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	95.2	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	95.2	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3324719)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	109	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	99.4	60	126	
<b>EP074H: Naphthalene (QCLot: 3324719)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	91.8	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	95.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	96.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	97.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.4	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	96.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	92.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	91.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	29.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	100	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	95.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.8	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	88.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.0	76	122	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850) - continued</b>									
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	90.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	92.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.3	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	87.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.1	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.1	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	75.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	96.7	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	96.4	63	131	
<b>EP080: BTEXN (QCLot: 3324717)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.3	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.1	62	138	
<b>EP080: BTEXN (QCLot: 3324718)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	74.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	76.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	79.5	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	84.6	62	138	



## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>							
ES1404580-002	VP_SB08_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.5	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	104	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	103	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>							
ES1404580-015	D02_030314_RP	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>							
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	90.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>							
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>							
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	109	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	102	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>							
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.0	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>							
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	20 mg/kg	102	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 mg/kg	100	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 mg/kg	101	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 mg/kg	102	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 mg/kg	97.3	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>							
ES1404580-002	VP_SB08_0.5	EP075(SIM): Acenaphthene	83-32-9	20 mg/kg	95.5	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850) - continued</b>								
ES1404580-002	VP_SB08_0.5	EP075(SIM): Pyrene	129-00-0	20 mg/kg	113	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.7	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>								
ES1404580-002	VP_SB08_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	89.7	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.5	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>								
ES1404580-002	VP_SB08_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.0	52	132	
<b>EP080: BTEXN (QCLot: 3324717)</b>								
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.4	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	72.3	70	130			
<b>EP080: BTEXN (QCLot: 3324718)</b>								
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	75.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.3	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	82.0	70	130			



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3324717)</b>											
ES1404544-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.1	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.4	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	72.3	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.7	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3324718)</b>											
ES1404580-002	VP_SB08_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	75.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.3	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	82.0	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3324719)</b>											
ES1404580-002	VP_SB08_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	109	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	102	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3324719)</b>											
ES1404580-002	VP_SB08_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3325849)</b>											
ES1404580-002	VP_SB08_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	89.7	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.5	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3325849)</b>											
ES1404580-002	VP_SB08_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	113	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.4	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.0	----	52	132	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3325850)</b>										
ES1404580-002	VP_SB08_0.5	EP075(SIM): Phenol	108-95-2	20 mg/kg	102	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 mg/kg	100	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 mg/kg	101	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 mg/kg	102	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 mg/kg	97.3	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3325850)</b>										
ES1404580-002	VP_SB08_0.5	EP075(SIM): Acenaphthene	83-32-9	20 mg/kg	95.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 mg/kg	113	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3332613)</b>										
ES1404580-002	VP_SB08_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.5	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	104	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	103	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3332614)</b>										
ES1404580-002	VP_SB08_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	90.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333456)</b>										
ES1404580-015	D02_030314_RP	EG005T: Arsenic	7440-38-2	50 mg/kg	103	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333457)</b>										
ES1404580-015	D02_030314_RP	EG035T: Mercury	7439-97-6	5 mg/kg	92.6	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404580</b>	Page	: 1 of 9
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 04-MAR-2014
Sampler	: RP	Issue Date	: 26-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 22
		No. of samples analysed	: 20

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
<b>Soil Glass Jar - Unpreserved (EA002)</b> VP_SB08_0.5	03-MAR-2014	10-MAR-2014	10-MAR-2014	✓	10-MAR-2014	10-MAR-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	----	----	----	05-MAR-2014	17-MAR-2014	✓
<b>EA150: Particle Sizing</b>							
<b>Snap Lock Bag (EA150)</b> VP_SB08_0.5	03-MAR-2014	---	30-AUG-2014	----	10-MAR-2014	03-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>							
<b>Snap Lock Bag (EA150)</b> VP_SB08_0.5	03-MAR-2014	---	30-AUG-2014	----	10-MAR-2014	03-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VP_SB08_0.2, VP_SB07_0.2, V0_MW16_0.2, VO_SB03_0.2	03-MAR-2014	---	30-AUG-2014	----	14-MAR-2014	10-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED007)</b> VP_SB08_0.5	03-MAR-2014	10-MAR-2014	31-MAR-2014	✓	10-MAR-2014	31-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, VP_SB07_0.5, D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	03-MAR-2014	11-MAR-2014	30-AUG-2014	✓	11-MAR-2014	30-AUG-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	03-MAR-2014	11-MAR-2014	30-AUG-2014	✓	12-MAR-2014	30-AUG-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	03-MAR-2014	11-MAR-2014	31-MAR-2014	✓	12-MAR-2014	31-MAR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VP_SB08_0.5	03-MAR-2014	07-MAR-2014	31-MAR-2014	✓	11-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_SB08_0.5, V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB08_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VP_SB08_0.5, VP_SB07_0.5	03-MAR-2014	05-MAR-2014	10-MAR-2014	✓	06-MAR-2014	10-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VP_SB08_0.5, VP_SB07_0.5, V0_MW16_0.5, D01_030314_RP, VU_MW17_0.5, VO_SB03_0.5, VO_SB03_1.0, VU_MW18_0.5, D02_030314_RP, VU_MW18_1.0, VU_MW18_0.9, VO_MW10_2.0, VO_MW20_2.0	03-MAR-2014	06-MAR-2014	17-MAR-2014	✓	06-MAR-2014	15-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB08_0.5,	VP_SB07_0.5	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	06-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0,	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	07-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK, TSC	T.SP/3,	25-FEB-2014	05-MAR-2014	11-MAR-2014	✓	07-MAR-2014	11-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB08_0.5,	VP_SB07_0.5	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	06-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> V0_MW16_0.5, VU_MW17_0.5, VO_SB03_1.0, D02_030314_RP, VU_MW18_0.9, VO_MW20_2.0	D01_030314_RP, VO_SB03_0.5, VU_MW18_0.5, VU_MW18_1.0, VO_MW10_2.0,	03-MAR-2014	05-MAR-2014	17-MAR-2014	✓	07-MAR-2014	17-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK, TSC	T.SP/3,	25-FEB-2014	05-MAR-2014	11-MAR-2014	✓	07-MAR-2014	11-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	3	33.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	20	5.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	36	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	22	13.6	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	22	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.

Page : 8 of 9  
Work Order : ES1404580 Amendment 1  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

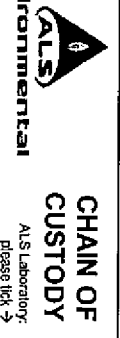
### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method					
Laboratory Duplicates (DUP)					
pH (1:5)	1	20	5.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





**CHAIN OF CUSTODY**  
ALS Laboratory:  
please tick →

DAGS A/DICE 21 Barma Road, Picnic 54 6955  
Ph: 08 8399 0890 E: [alslab@alslab.com](mailto:alslab@alslab.com)  
JERRIBANK 32 Sheard Street, Stafford QLD 4033  
Ph: 07 3243 7222 E: [samples.jerribank@alslab.com](mailto:samples.jerribank@alslab.com)  
JULIASTONE 60 Colman Drive, Channon QLD 4680  
Ph: 07 7471 5000 E: [jstone@alslab.com](mailto:jstone@alslab.com)

LMAC/KAY78 78-hour Road, Mackay QLD 4740  
Ph: 07 4644 0177 E: [mackay@alslab.com](mailto:mackay@alslab.com)  
DHE BOURNE 2-4 Wessell Road, Springvale VIC 3171  
Ph: 03 8549 9800 E: [samples.melbourne@alslab.com](mailto:samples.melbourne@alslab.com)  
DUNDAS 27 Sydney Road, Adelaide NSW 2850  
Ph: 02 6972 6735 E: [mudgee.m@alslab.com](mailto:mudgee.m@alslab.com)

DHEWASVILLE 5 Rose Gully Road, Wyallo NSW 2304  
Ph: 02 4988 9438 E: [samples.newcastle@alslab.com](mailto:samples.newcastle@alslab.com)  
DUNDY 413 Grey Place, North Haven NSW 2541  
Ph: 02 4423 2083 E: [romana@alslab.com](mailto:romana@alslab.com)  
DPERTH 10 Hood Way, Midland, WA 6150  
Ph: 08 9209 7655 E: [samples.perth@alslab.com](mailto:samples.perth@alslab.com)

LYNDEN 277-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8585 E: [samples.sydney@alslab.com](mailto:samples.sydney@alslab.com)  
LITTONSVILLE 14-18 Deane Court, Bolle QLD 4018  
Ph: 07 4788 0580 E: [brisbane.environment@alslab.com](mailto:brisbane.environment@alslab.com)  
DWOOLONGONG 99 Koppin Street, Wollongong NSW 2500  
Ph: 02 4225 3125 E: [perth@alslab.com](mailto:perth@alslab.com)

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
SITE MANAGER: JOHN EWING  
CONTACT PH: 0401 776 290  
SAMPLER: R. POCCE  
SAMPLER MOBILE:  
COC emailed to ALS? (YES / NO)  
Email Reports to (will default to PM if no other addresses are listed): [synphony.dela.coast@erm.com](mailto:synphony.dela.coast@erm.com)  
Email Invoices to (will default to PM if no other addresses are listed): [synphony.dela.coast@erm.com](mailto:synphony.dela.coast@erm.com)  
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  
 Standard TAT (list due date):  
 Non Standard or urgent TAT (list due date):  
SY-050-14  
RELINQUISHED BY: Dane Brookes  
DATE/TIME: 4/3/14  
RECEIVED BY: Dan by W  
DATE/TIME: 4/3/14 16:15

FOR LABORATORY USE ONLY (Circle)  
COC SEQUENCE NUMBER (Circle)  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7  
RELINQUISHED BY: Dan  
DATE/TIME: 4/3/14 17:00  
RECEIVED BY: Dan  
DATE/TIME: 4/3 19:00

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
13 *	VN-MW18-0.2	3.3.14	S	ACM Bag.	1													HOLD
14 *	VN-MW18-0.5	3.3.14	S	ST. Sulfate jar	1	X		X										
15 *	DD2-030314-RP	3.3.14	S	ST. Sulfate jar	1	X		X										
16 *	VN-MW18-1.0	3.3.14	S	TOC jar, PSD BAGS	2	X		X										
17	VN-MW18-0.9	3.3.14	S	1 jar	1	X		X										
18	BLK		S	1 jar	1			X										TPH/BTEX only
19	T. Sp/3	2/2	S	1 jar	1			X										TRH only
TOTAL																		

Matrix Containers Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cf Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airtight Unpreserved Plastic  
V = VOA Vial (HCl) Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphide Soils; B = Unpreserved Bag

2 of 3



CHAIN OF CUSTODY

ALS Laboratory, please tick 5

ENT: ERM

FILE: PYRMONT

PROJECT: VALES POINT POWER STATION

DER NUMBER: 0237747

E MANAGER: JOHN EWINGS

WFLER: C. Masters

C emailed to ALS? (YES / NO)

all Reports to (will default to PM if no other addresses are listed): symphony.dela.coas@em.com

all Involes to (will default to PM if no other addresses are listed): symphony.dela.coas@em.com

INMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  Standard TAT (List due date):  Non Standard or urgent TAT (List due date):

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.: SY-050-14

CONTACT PH: 0401 776 290

SAMPLER MOBILE: EDD FORMAT (or default):

RELINQUISHED BY: Dave Brookes

DATE/TIME: 4/3/14

RECEIVED BY: [Signature]

DATE/TIME: 4/5/14 16:15

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No

Free Ice / Kezen Ice bricks present upon receipt? Yes No

Random Sample Temperature on Receipt: N/A

Other comment:

RELINQUISHED BY: [Signature]

DATE/TIME: 4/3/14

RECEIVED BY: [Signature]

DATE/TIME: 4/3

1200

1900

SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)

CONTAINER INFORMATION

ANALYSIS REQUIRED INCLUDING STATES (NB: State Codes must be listed to attract state prices) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

Additional Information

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
	20	3/3/14	S	2 jars, 1 bag		3	X	X												
	21	3/3/14	S	2 jars, 1 bag		3	X	X												
	22	TSC	S																	
			S																	
			S																	
			S																	
			S																	
			S																	
			S																	

or Contaminant Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airflight Unpreserved Plastic; VOA Via HCl Preserved, VB = VOA Via Sodium Disulphate Preserved, VS = VOA Via Sulfuric Preserved, AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

3 of 3

# Certificate of Analysis

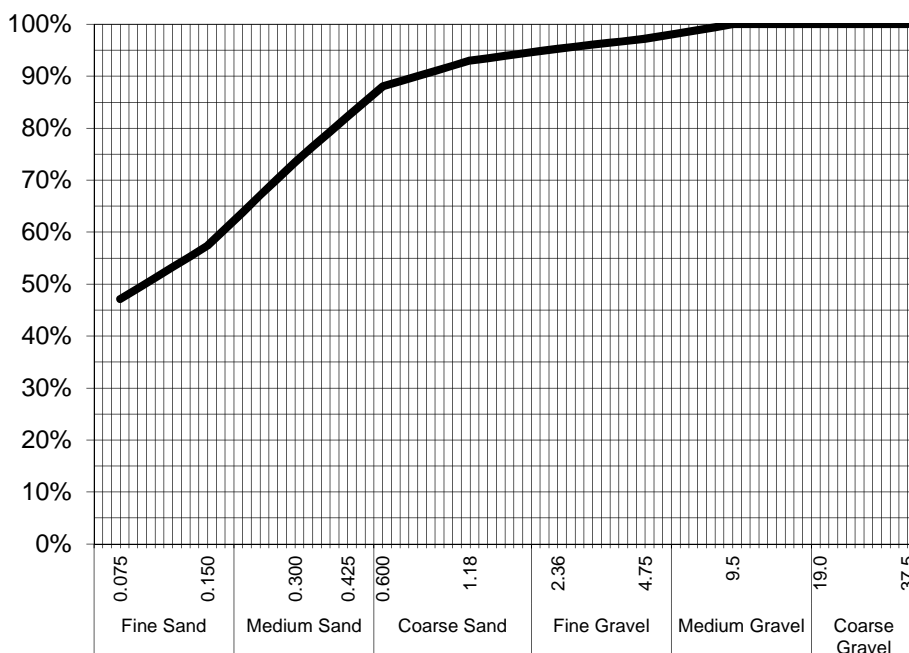
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 10-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 4-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1404580-002 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VP\_SB08\_0.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	97%
2.36	95%
1.18	93%
0.600	88%
0.425	82%
0.300	74%
0.150	57%
0.075	47%

Samples analysed as received.

Median Particle Size (mm)	0.075
---------------------------	-------

## Sample Comments:

**Analysed:** 6-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



# Certificate of Analysis

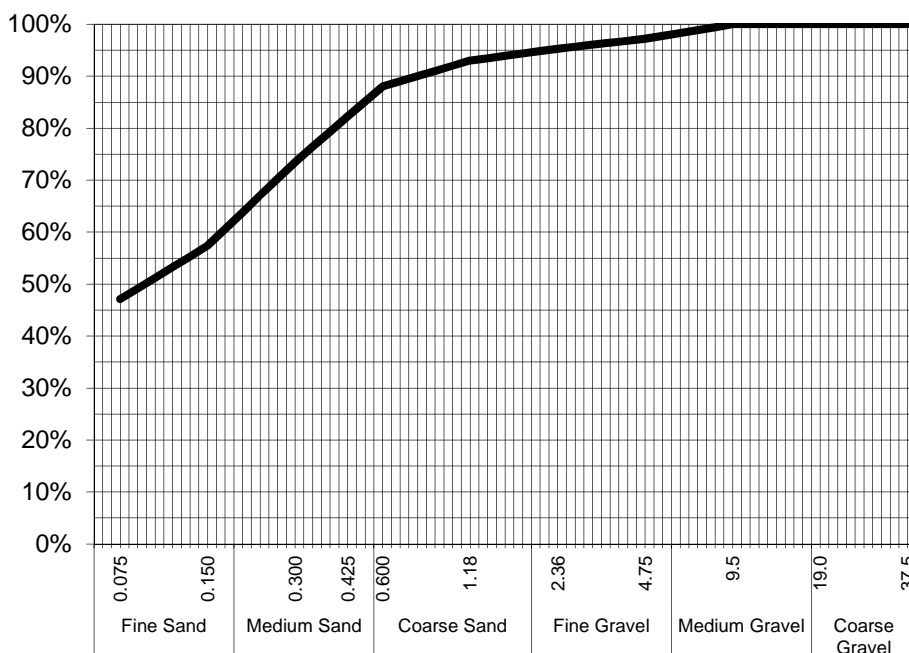
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 10-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 4-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1404580-002 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VP\_SB08\_0.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	97%
2.36	95%
1.18	93%
0.600	88%
0.425	82%
0.300	74%
0.150	57%
0.075	47%

Samples analysed as received.

Median Particle Size (mm)	0.075
---------------------------	-------

## Sample Comments:

**Analysed:** 6-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1404881</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : STEPHANIE BROOKES <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 45  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 06-MAR-2014 <b>Issue Date</b> : 14-MAR-2014  <b>No. of samples received</b> : 39 <b>No. of samples analysed</b> : 32
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
		Sydney Inorganics





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG020:** Positive result for sample ES1404881-39 has been confirmed by reanalysis.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	16.6	17.7	15.5	14.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	----
Asbestos Type	1332-21-4	-	--	-	-	----	----	----
Sample weight (dry)	----	0.01	g	366	507	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.366	0.507	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	8	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	13	22	5	4	----
Copper	7440-50-8	5	mg/kg	<5	<5	7	7	----
Lead	7439-92-1	5	mg/kg	<5	6	8	8	----
Nickel	7440-02-0	2	mg/kg	<2	3	8	8	----
Zinc	7440-66-6	5	mg/kg	7	14	39	35	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	0.6
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	14.2
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.9
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	8.7
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	3.7
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	----	12.4
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	----	29.1
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	107	----	----	----
Toluene-D8	2037-26-5	0.1	%	104	96.8	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	99.5	93.4	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.1	89.9	90.3	85.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	95.7	98.2	96.2	90.7	----
2,4,6-Tribromophenol	118-79-6	0.1	%	81.3	84.4	80.7	76.1	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	96.6	92.5	94.0	89.8	----
Anthracene-d10	1719-06-8	0.1	%	102	97.7	96.1	94.6	----
4-Terphenyl-d14	1718-51-0	0.1	%	103	102	98.9	95.2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB06_3.0	VP_SB05_3.0	VU_MW17_6.5	D01_050314_SB	TSP16
				05-MAR-2014 10:00	05-MAR-2014 10:00	05-MAR-2014 15:00	05-MAR-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-002	ES1404881-003	ES1404881-004	ES1404881-005	ES1404881-007
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	105	100	97.6	101
Toluene-D8	2037-26-5	0.1	%	99.8	93.1	103	100	106
4-Bromofluorobenzene	460-00-4	0.1	%	99.3	92.9	100	98.8	101





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	16.7	15.3	12.7
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	----
Asbestos Type	1332-21-4	-	--	----	----	-	-	----
Sample weight (dry)	----	0.01	g	----	----	251	194	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.251	0.194	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	<5
Barium	7440-39-3	10	mg/kg	----	----	----	----	<10
Beryllium	7440-41-7	1	mg/kg	----	----	----	----	<1
Boron	7440-42-8	50	mg/kg	----	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	----	<2
Cobalt	7440-48-4	2	mg/kg	----	----	----	----	<2
Copper	7440-50-8	5	mg/kg	----	----	----	----	<5
Lead	7439-92-1	5	mg/kg	----	----	----	----	<5
Manganese	7439-96-5	5	mg/kg	----	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	----	----	----	----	<2
Selenium	7782-49-2	5	mg/kg	----	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	----	----	----	----	<5
Zinc	7440-66-6	5	mg/kg	----	----	----	----	<5
Arsenic	7440-38-2	5	mg/kg	----	----	7	<5	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	17	8	----
Copper	7440-50-8	5	mg/kg	----	----	<5	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	----	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	----	----	4	<2	----
Zinc	7440-66-6	5	mg/kg	----	----	14	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	<5	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
				ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Chloroethane	75-00-3	5	mg/kg	----	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<b>1.0</b>	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<b>20.9</b>	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<b>2.9</b>	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<b>13.0</b>	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<b>5.7</b>	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<b>18.7</b>	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	----	<b>43.5</b>	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BLK	TSC	VP_SB07_3.0	VP_SB08_3.0	VO_SB03_3.0
				25-FEB-2014 15:00	25-FEB-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-008	ES1404881-009	ES1404881-010	ES1404881-011	ES1404881-013
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	98.6	97.2	----
Toluene-D8	2037-26-5	0.1	%	----	----	90.8	88.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	84.4	83.3	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	91.1	84.5	84.0
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	93.6	91.1	93.2
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	75.5	74.7	73.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	91.7	91.8	91.0
Anthracene-d10	1719-06-8	0.1	%	----	----	97.7	97.4	96.1
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	99.5	99.6	98.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	109	96.1	95.1	107
Toluene-D8	2037-26-5	0.1	%	107	113	88.5	85.2	110
4-Bromofluorobenzene	460-00-4	0.1	%	103	108	87.9	83.4	108



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	21.8	----	21.4	21.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	Yes	----	----	No
Asbestos Type	1332-21-4	-	--	----	Ch + Am + Cr	----	----	-
Sample weight (dry)	----	0.01	g	----	628	----	----	801
APPROVED IDENTIFIER:	----	-	--	----	S.SPOONER	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.628	----	----	0.801
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	0.034	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	0.009	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	20	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	<2	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	5	4	----
Copper	7440-50-8	5	mg/kg	----	----	13	11	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	----	----	19	16	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	<2	----
Zinc	7440-66-6	5	mg/kg	----	----	86	79	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	<5	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Chloroethane	75-00-3	5	mg/kg	----	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	----	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	1.1	1.0	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	5.5	5.7	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	0.6	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	2.7	2.7	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	2.0	1.9	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	1.2	1.0	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	1.2	0.9	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	13.7	13.8	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	0.7	0.7	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	1.3	1.3	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	80	80	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	740	700	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	340	300	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	1160	1080	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	160	140	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	910	830	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	180	180	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	1250	1150	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	160	140	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
<b>EP074S: VOC Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW16_4.6	VP_SB02_0.2	VP_SB02_0.5	D01_050314_RP	VP_SB03_0.2
				04-MAR-2014 15:00	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 08:30	05-MAR-2014 09:45
Compound	CAS Number	LOR	Unit	ES1404881-014	ES1404881-015	ES1404881-016	ES1404881-017	ES1404881-019
<b>EP074S: VOC Surrogates - Continued</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	110	106	----
Toluene-D8	2037-26-5	0.1	%	----	----	95.0	98.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	87.5	85.4	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.5	----	89.8	89.5	----
2-Chlorophenol-D4	93951-73-6	0.1	%	92.4	----	93.1	92.8	----
2,4,6-Tribromophenol	118-79-6	0.1	%	71.1	----	89.8	92.1	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.0	----	95.5	96.2	----
Anthracene-d10	1719-06-8	0.1	%	95.4	----	91.2	90.2	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.3	----	94.3	94.2	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.3	----	106	103	----
Toluene-D8	2037-26-5	0.1	%	93.1	----	91.8	95.2	----
4-Bromofluorobenzene	460-00-4	0.1	%	92.1	----	88.5	86.7	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
				05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
				ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
Compound	CAS Number	LOR	Unit	Client sampling date / time				
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.3	17.8	8.4	14.8	29.6
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	6
Barium	7440-39-3	10	mg/kg	----	----	40	<10	20
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	8	8	9
Cobalt	7440-48-4	2	mg/kg	----	----	3	<2	<2
Copper	7440-50-8	5	mg/kg	----	----	5	<5	<5
Lead	7439-92-1	5	mg/kg	----	----	5	<5	6
Manganese	7439-96-5	5	mg/kg	----	----	145	9	8
Nickel	7440-02-0	2	mg/kg	----	----	3	<2	4
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	8	18	28
Zinc	7440-66-6	5	mg/kg	----	----	16	<5	<5
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	4	7	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	6	7	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	8	<5	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
				05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
				05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
				05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
				05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	101	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.4	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.3	90.8	91.6	84.5	89.9
2-Chlorophenol-D4	93951-73-6	0.1	%	89.9	92.6	97.3	86.4	89.5
2,4,6-Tribromophenol	118-79-6	0.1	%	81.3	82.6	83.6	74.6	98.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.5	90.2	96.2	87.3	88.4
Anthracene-d10	1719-06-8	0.1	%	95.4	94.7	100	92.4	95.1
4-Terphenyl-d14	1718-51-0	0.1	%	96.1	95.7	102	93.0	96.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	96.0	89.5	90.8	101



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VP_SB03_0.5	VU_MW19_0.5	VO_MW07_5.0	VO_MW05_3.0	VO_MW04_2.0
Client sampling date / time	05-MAR-2014 09:45	05-MAR-2014 11:30	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1404881-020	ES1404881-022	ES1404881-024	ES1404881-025	ES1404881-026
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	97.4	99.3	95.3	100	110
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	97.1	93.6	98.5	108



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.7	22.8	14.2	----	11.4
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	Yes	No	----
Asbestos Type	1332-21-4	-	--	-	----	Am + Cr	-	----
Unknown Mineral Fibre	----	0.1	g/kg	----	----	Yes	----	----
Sample weight (dry)	----	0.01	g	228	----	333	671	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.228	----	0.333	0.671	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	----
Fibrous Asbestos	----	0.002	g	<0.002	----	0.117	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	0.035	<0.001	----
Trace Asbestos Detected	----	5	Fibres	No	----	No	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	<5
Barium	7440-39-3	10	mg/kg	----	40	----	----	<10
Beryllium	7440-41-7	1	mg/kg	----	<1	----	----	<1
Boron	7440-42-8	50	mg/kg	----	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	11	----	----	7
Cobalt	7440-48-4	2	mg/kg	----	<2	----	----	<2
Copper	7440-50-8	5	mg/kg	----	7	----	----	<5
Lead	7439-92-1	5	mg/kg	----	<5	----	----	<5
Manganese	7439-96-5	5	mg/kg	----	10	----	----	9
Nickel	7440-02-0	2	mg/kg	----	<2	----	----	<2
Selenium	7782-49-2	5	mg/kg	----	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg	----	20	----	----	17
Zinc	7440-66-6	5	mg/kg	----	<5	----	----	11
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	4	----	8	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Copper	7440-50-8	5	mg/kg	<5	----	<5	----	----
Lead	7439-92-1	5	mg/kg	<5	----	<5	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	<2	----	----
Zinc	7440-66-6	5	mg/kg	15	----	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB04_2.0	VO_MW01_2.0	VP_MW02_2.0	VO_MW01_0.2	VO_MW01_0.5
				05-MAR-2014 15:00	05-MAR-2014 15:00	05-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-027	ES1404881-028	ES1404881-029	ES1404881-030	ES1404881-031
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	----	94.4	----	----
Toluene-D8	2037-26-5	0.1	%	97.8	----	81.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	----	80.4	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	83.8	84.2	81.3	----	92.3
2-Chlorophenol-D4	93951-73-6	0.1	%	79.7	94.4	90.7	----	101
2,4,6-Tribromophenol	118-79-6	0.1	%	76.0	78.1	76.9	----	81.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.6	89.1	87.5	----	98.4
Anthracene-d10	1719-06-8	0.1	%	94.2	93.1	92.4	----	103
4-Terphenyl-d14	1718-51-0	0.1	%	95.4	94.8	93.2	----	106
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	104	91.9	----	99.7
Toluene-D8	2037-26-5	0.1	%	94.2	129	78.2	----	130
4-Bromofluorobenzene	460-00-4	0.1	%	96.0	121	78.9	----	123



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW12_0.2	VO_MW12_0.5	VO_SB01_0.2	VO_SB01_0.5	VP_MW02_0.2
				04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-032	ES1404881-033	ES1404881-034	ES1404881-035	ES1404881-036
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	12.7	----	16.0	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	910	----	827	----	658
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.910	----	0.827	----	0.658
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Barium	7440-39-3	10	mg/kg	----	30	----	30	----
Beryllium	7440-41-7	1	mg/kg	----	<1	----	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	----	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	4	----	4	----
Cobalt	7440-48-4	2	mg/kg	----	<2	----	2	----
Copper	7440-50-8	5	mg/kg	----	6	----	6	----
Lead	7439-92-1	5	mg/kg	----	<5	----	<5	----
Manganese	7439-96-5	5	mg/kg	----	48	----	91	----
Nickel	7440-02-0	2	mg/kg	----	4	----	5	----
Selenium	7782-49-2	5	mg/kg	----	<5	----	<5	----
Vanadium	7440-62-2	5	mg/kg	----	13	----	16	----
Zinc	7440-66-6	5	mg/kg	----	13	----	31	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW12_0.2	VO_MW12_0.5	VO_SB01_0.2	VO_SB01_0.5	VP_MW02_0.2
				04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-032	ES1404881-033	ES1404881-034	ES1404881-035	ES1404881-036
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW12_0.2	VO_MW12_0.5	VO_SB01_0.2	VO_SB01_0.5	VP_MW02_0.2
				04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-032	ES1404881-033	ES1404881-034	ES1404881-035	ES1404881-036
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	88.2	----	82.0	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	86.7	----	88.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	81.0	----	75.7	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	81.0	----	83.9	----
Anthracene-d10	1719-06-8	0.1	%	----	83.4	----	90.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	84.0	----	83.3	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	102	----	97.6	----
Toluene-D8	2037-26-5	0.1	%	----	106	----	101	----



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW12_0.2	VO_MW12_0.5	VO_SB01_0.2	VO_SB01_0.5	VP_MW02_0.2
				04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00	04-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404881-032	ES1404881-033	ES1404881-034	ES1404881-035	ES1404881-036
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	----	109	----	102	----

Client sampling date / time





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VP\_MW02\_0.5

---

---

---

---

Client sampling date / time

04-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404881-037	---	---	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	11.0	---	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	6	---	---	---	---
Copper	7440-50-8	5	mg/kg	<5	---	---	---	---
Lead	7439-92-1	5	mg/kg	<5	---	---	---	---
Nickel	7440-02-0	2	mg/kg	<2	---	---	---	---
Zinc	7440-66-6	5	mg/kg	<5	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	---	---	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	---	---	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	---	---	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	---	---	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	---	---	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	---	---	---	---
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	---	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	---	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VP\_MW02\_0.5

---

---

---

---

Client sampling date / time

04-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404881-037	---	---	---	---
<b>EP074D: Fumigants - Continued</b>								
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	---	---	---	---
Chloromethane	74-87-3	5	mg/kg	<5	---	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	---	---	---	---
Bromomethane	74-83-9	5	mg/kg	<5	---	---	---	---
Chloroethane	75-00-3	5	mg/kg	<5	---	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	---	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	---	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	---	---	---	---
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	---	---	---	---
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	---	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	---	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	---	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	---	---	---	---
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	---	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	---	---	---	---
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	---	---	---	---
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	---	---	---	---
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VP\_MW02\_0.5

Client sampling date / time

04-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1404881-037				
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VP\_MW02\_0.5

Client sampling date / time

04-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1404881-037				
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VP\_MW02\_0.5

----

----

----

----

Client sampling date / time

04-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1404881-037	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	101	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.9	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	84.6	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	80.0	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	82.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	81.7	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	97.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.3	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_040314

---

---

---

---

Client sampling date / time

04-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404881-039	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020F: Dissolved Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.023	---	---	---	---

### EG035F: Dissolved Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_040314

---

---

---

---

Client sampling date / time

04-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1404881-039	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates





## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

Compound	CAS Number	LOR	Unit	R01_040314	---	---	---	---
				04-MAR-2014 15:00	---	---	---	---
				<b>ES1404881-039</b>	---	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	19.4	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	50.7	---	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	53.7	---	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	70.3	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	83.3	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	77.9	---	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.3	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	104	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	85.7	---	---	---	---

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VP_SB06_3.0 - 05-MAR-2014 10:00	Mid yellow clay soil with grey rocks and quartz grains plus a trace of vegetation.
EA200: Description	VP_SB05_3.0 - 05-MAR-2014 10:00	Mid red - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VP_SB07_3.0 - 04-MAR-2014 15:00	Mid red-brown clay soil with grey rocks and quartz grains plus a trace of vegetation.
EA200: Description	VP_SB08_3.0 - 04-MAR-2014 15:00	Mid orange clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VP_SB02_0.2 - 05-MAR-2014 08:30	Mid grey-brown clay soil with plenty of dark grey rocks plus several pieces of friable asbestos cement sheeting approximately 5 x 4 x 4mm plus several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5mm.
EA200: Description	VP_SB03_0.2 - 05-MAR-2014 09:45	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VP_SB04_2.0 - 05-MAR-2014 15:00	Pale cream clay soil with a trace of vegetation.
EA200: Description	VP_MW02_2.0 - 05-MAR-2014 15:00	Mid orange-brown clay soil with red and grey rocks plus several pieces of friable asbestos cement sheeting approximately 4 x 3 x 2mm plus several loose bundles of friable asbestos and unidentified mineral fibres approximately 2 x 1 x 0.5mm.
EA200: Description	VO_MW01_0.2 - 04-MAR-2014 15:00	Mid yellow-brown clay soil with red and grey rocks plus a trace of vegetation.
EA200: Description	VO_MW12_0.2 - 04-MAR-2014 15:00	Mid yellow-brown clay soil with red and grey rocks plus a trace of vegetation.
EA200: Description	VO_SB01_0.2 - 04-MAR-2014 15:00	Mid yellow-brown clay soil with red and grey rocks plus a trace of vegetation.
EA200: Description	VP_MW02_0.2 - 04-MAR-2014 15:00	Mid yellow-brown clay soil with red and grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1404881</b>	<b>Page</b>	<b>: 1 of 27</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 06-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 14-MAR-2014</b>
<b>Sampler</b>	<b>: STEPHANIE BROOKES</b>	<b>No. of samples received</b>	<b>: 39</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 32</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Pabi Subba  
Shaun Spooner  
Shobhna Chandra

#### Position

Senior Organic Chemist  
Asbestos Identifier  
Metals Coordinator

#### Accreditation Category

Sydney Inorganics  
Sydney Organics  
Newcastle - Asbestos  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3330712)</b>									
ES1404786-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.0	14.2	1.2	0% - 50%
ES1404847-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.1	18.1	25.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3330713)</b>									
ES1404881-013	VO_SB03_3.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.7	13.0	2.6	0% - 50%
ES1404881-035	VO_SB01_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.0	13.9	14.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3331345)</b>									
ES1404849-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.7	24.4	9.2	0% - 20%
ES1404881-027	VP_SB04_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.7	15.9	1.4	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3333426)</b>									
ES1404873-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	30	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	14	7.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	18	6.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	15	14.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	141	132	6.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	39	38	2.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	17	15	14.4	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1404881-013	VO_SB03_3.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3333426) - continued</b>									
ES1404881-013	VO_SB03_3.0	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3333428)</b>									
ES1404881-028	VO_MW01_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	30	41.5	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	10	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	10	10	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	18	6.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1404888-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	210	200	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	7	8	16.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	5	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	20	24	18.7	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	8	49.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	47	71	40.3	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	346	288	18.0	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	221	194	13.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	12	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	357	380	6.4	0% - 20%
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3333427)</b>									
ES1404873-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404881-013	VO_SB03_3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3333429)</b>									
ES1404881-028	VO_MW01_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1404888-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	1.7	1.4	20.1	0% - 50%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3329269) - continued</b>									
ES1404881-002	VP_SB06_3.0	EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3329269) - continued</b>									
ES1404881-002	VP_SB06_3.0	EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3329269)</b>									
ES1404881-002	VP_SB06_3.0	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3329267)</b>									
ES1404881-002	VP_SB06_3.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1404881-020	VP_SB03_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3329267) - continued</b>									
ES1404881-020	VP_SB03_0.5	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3329304)</b>									
ES1404799-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1404881-033	VO_MW12_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3329267)</b>									
ES1404881-002	VP_SB06_3.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3329267) - continued</b>									
ES1404881-002	VP_SB06_3.0	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404881-020	VP_SB03_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3329304)</b>									
ES1404799-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3329304) - continued</b>									
ES1404799-001	Anonymous	EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.9	0.8	11.5	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.8	0.8	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.7	1.6	6.1	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1404881-033	VO_MW12_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3329266)</b>									
ES1404881-002	VP_SB06_3.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1404881-020	VP_SB03_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3329268)</b>									
ES1404881-002	VP_SB06_3.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1404881-016	VP_SB02_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3329299)</b>									
ES1404799-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1404881-033	VO_MW12_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3329303)</b>									
ES1404799-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1404881-033	VO_MW12_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3329266)</b>									
ES1404881-002	VP_SB06_3.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1404881-020	VP_SB03_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3329268)</b>									
ES1404881-002	VP_SB06_3.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1404881-016	VP_SB02_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3329299)</b>									
ES1404799-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1404881-033	VO_MW12_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3329303)</b>									
ES1404799-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1404881-033	VO_MW12_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3329268)</b>									
ES1404881-002	VP_SB06_3.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	106-42-3 95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3329268) - continued</b>										
ES1404881-002	VP_SB06_3.0	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1404881-016	VP_SB02_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3329299)</b>										
ES1404799-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1404881-033	VO_MW12_0.5	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>Sub-Matrix: WATER</b>										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3332856)</b>										
ES1405063-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.017	0.015	10.2	No Limit	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3332855)</b>										
ES1405063-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1405063-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3331888)</b>										
ES1404868-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	4010	3350	17.8	0% - 50%	
ES1404868-011	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	90	90	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3331888)</b>										

Page : 12 of 27  
 Work Order : ES1404881  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3331888) - continued</b>									
ES1404868-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	4210	3480	18.8	0% - 50%
ES1404868-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	90	80	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3331888)</b>									
ES1404868-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	298	305	2.4	0% - 50%
		EP080: Toluene	108-88-3	2	µg/L	756	748	0.9	0% - 20%
		EP080: Ethylbenzene	100-41-4	2	µg/L	92	95	2.9	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	629	643	2.2	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	188	199	5.9	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<20	23	14.8	No Limit
ES1404868-011	Anonymous	EP080: Benzene	71-43-2	1	µg/L	1	1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	2	2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	5	5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333426)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	122	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	110	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	124	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	117	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	120	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333428)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	115	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	122	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	112	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	120	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	117	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	112	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	121	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333427)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.4	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333429)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.8	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3329269)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3329269) - continued</b>								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	80.3	64	126
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	85.6	66	128
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	87.6	63	129
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	83.7	63	129
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	91.6	64	130
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	88.5	63	129
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	63	129
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	83.7	62	130
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	79.1	61	131
<b>EP074B: Oxygenated Compounds (QCLot: 3329269)</b>								
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	38.6	29.6	156
		5	mg/kg	<5	----	----	----	----
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	108	58	136
		5	mg/kg	<5	----	----	----	----
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	91.1	54	138
		5	mg/kg	<5	----	----	----	----
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	87.5	54	136
		5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds (QCLot: 3329269)</b>								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	77.2	54	126
<b>EP074D: Fumigants (QCLot: 3329269)</b>								
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	78.1	55	133
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	94.5	69	127
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	74.7	54	124
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	71.6	51	125
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	87.6	66	126
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3329269)</b>								
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	43.8	30	148
		5	mg/kg	<5	----	----	----	----
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	73.5	41	141
		5	mg/kg	<5	----	----	----	----
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	82.6	43	147
		5	mg/kg	<5	----	----	----	----
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	74.1	47	141
		5	mg/kg	<5	----	----	----	----
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	84.7	49	143
		5	mg/kg	<5	----	----	----	----
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	85.4	49	135
		5	mg/kg	<5	----	----	----	----



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3329269) - continued</b>									
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	88.4	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	66.2	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	89.4	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	91.4	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	91.6	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	82.4	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	89.3	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.3	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	97.2	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	97.9	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	105	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	78.8	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	80.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	76.8	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	85.7	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	97.2	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	55.4	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	73.4	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	79.0	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3329269)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	87.0	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	88.8	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	91.3	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	91.1	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	87.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.0	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	93.7	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	79.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	88.7	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3329269)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	95.3	62	120	
EP074: Dibromochloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	84.1	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	76.7	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	82.8	60	126	
<b>EP074H: Naphthalene (QCLot: 3329269)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074H: Naphthalene (QCLot: 3329269) - continued</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	105	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329267)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	91.6	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	98.6	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	91.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	90.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	92.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	86.2	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	83.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	85.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	32.8	10	57	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329304)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	82.1	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	82.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	81.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	98.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.2	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	89.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	88.4	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	88.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329267)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	97.1	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	98.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	95.6	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	97.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	96.9	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	99.7	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	103	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	95.4	81	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329267) - continued</b>									
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	87.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	86.6	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	104	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	81.2	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	94.9	72.4	114	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329304)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	85.2	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	86.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	86.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	85.3	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	87.0	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	88.4	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	88.8	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	82.8	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	86.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	86.1	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	84.8	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	83.4	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	83.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	82.8	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329266)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	88.6	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	88.1	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	89.9	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329268)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.1	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329299)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	112	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329303)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	94.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	95.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.5	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329266)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	89.2	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	88.5	74	138	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329266) - continued</b>									
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	89.4	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329268)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329299)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	112	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329303)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.7	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	86.6	63	131	
<b>EP080: BTEXN (QCLot: 3329268)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.3	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.0	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	96.0	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	108	62	138	
<b>EP080: BTEXN (QCLot: 3329299)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.3	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	103	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.1	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3332856)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	108	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	80	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3332855)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	98.1	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329176)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	32.3	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	67.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	63.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	68.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	70.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	68.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	72.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	64.1	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	71.1	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	78.5	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	27.7	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329176)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.2	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	68.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.6	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	77.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	78.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329176) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	82.7	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	82.1	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	79.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	81.4	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	97.8	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	72.9	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	72.4	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	70.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329175)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	78.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	105	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	90.4	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3331888)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.1	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329175)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	110	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	97.4	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.0	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3331888)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	96.8	75	127	
<b>EP080: BTEXN (QCLot: 3331888)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	116	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.4	70	120	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3331888) - continued</b>								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.5	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.9	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	77.8	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333426)</b>							
ES1404873-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	94.0	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	100	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.6	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	93.4	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	101	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333428)</b>							
ES1404881-028	VO_MW01_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	112	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333427)</b>							
ES1404873-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333429)</b>							
ES1404881-028	VO_MW01_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	93.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3329269)</b>							
ES1404881-002	VP_SB06_3.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	105	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	85.5	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3329269)</b>							
ES1404881-002	VP_SB06_3.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.3	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329267)</b>							
ES1404881-002	VP_SB06_3.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.9	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	50.9	20	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329304)</b>							
ES1404799-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	98.0	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	94.5	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.1	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329267)</b>							
ES1404881-002	VP_SB06_3.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329304)</b>							
ES1404799-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.0	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.3	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329266)</b>							
ES1404881-002	VP_SB06_3.0	EP071: C10 - C14 Fraction	----	640 mg/kg	121	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	127	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	116	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329268)</b>							
ES1404881-002	VP_SB06_3.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.8	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329299)</b>							
ES1404799-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	126	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329303)</b>							
ES1404799-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.1	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.2	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.5	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329266)</b>							
ES1404881-002	VP_SB06_3.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	124	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	114	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	106	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329268)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329268) - continued</b>								
ES1404881-002	VP_SB06_3.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329299)</b>								
ES1404799-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	123	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329303)</b>								
ES1404799-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.6	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.8	52	132	
<b>EP080: BTEXN (QCLot: 3329268)</b>								
ES1404881-002	VP_SB06_3.0	EP080: Benzene	71-43-2	2.5 mg/kg	96.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	93.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.3	70	130	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	94.1	70	130	
<b>EP080: BTEXN (QCLot: 3329299)</b>								
ES1404799-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	97.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	97.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.0	70	130	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	76.5	70	130	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3332856)</b>							
ES1405062-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.8	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.5	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.1	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	98.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	95.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	96.0	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3332855)</b>							
ES1404881-039	R01_040314	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.2	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3331888)</b>							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3331888) - continued</b>								
ES1404975-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	90.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3331888)</b>								
ES1404975-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	87.9	70	130	
<b>EP080: BTEXN (QCLot: 3331888)</b>								
ES1404975-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	84.9	70	130	
		EP080: Toluene	108-88-3	25 µg/L	105	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	88.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.6	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	83.3	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329266)</b>										
ES1404881-002	VP_SB06_3.0	EP071: C10 - C14 Fraction	----	640 mg/kg	121	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	127	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	116	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329266)</b>										
ES1404881-002	VP_SB06_3.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	124	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	114	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	106	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329267)</b>										
ES1404881-002	VP_SB06_3.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.8	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.9	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	50.9	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329267)</b>										
ES1404881-002	VP_SB06_3.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329268)</b>										
ES1404881-002	VP_SB06_3.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.8	----	70	130	----	----



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329268)</b>											
ES1404881-002	VP_SB06_3.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3329268)</b>											
ES1404881-002	VP_SB06_3.0	EP080: Benzene	71-43-2	2.5 mg/kg	96.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	93.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.3	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	94.1	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3329269)</b>											
ES1404881-002	VP_SB06_3.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	105	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	85.5	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3329269)</b>											
ES1404881-002	VP_SB06_3.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.3	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329299)</b>											
ES1404799-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	126	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329299)</b>											
ES1404799-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	123	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3329299)</b>											
ES1404799-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	97.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	97.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.0	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.5	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3329303)</b>											
ES1404799-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.1	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.2	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.5	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3329303)</b>											
ES1404799-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.6	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.8	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329304)</b>											
ES1404799-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	98.0	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	94.5	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.1	----	60	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3329304) - continued</b>										
ES1404799-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.1	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.3	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3329304)</b>										
ES1404799-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.3	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333426)</b>										
ES1404873-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	94.0	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	101	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	105	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	100	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	92.6	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	93.4	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	101	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333427)</b>										
ES1404873-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.8	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3333428)</b>										
ES1404881-028	VO_MW01_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	103	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333429)</b>										
ES1404881-028	VO_MW01_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	93.0	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3331888)</b>										
ES1404975-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	90.2	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3331888)</b>										
ES1404975-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	87.9	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3331888)</b>										
ES1404975-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	84.9	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	105	----	70	130	----	----





Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3331888) - continued</b>										
ES1404975-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	87.0	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	88.7	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.6	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	83.3	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3332855)</b>										
ES1404881-039	R01_040314	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.2	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3332856)</b>										
ES1405062-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.8	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.5	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.1	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	98.8	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	95.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	96.0	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1404881</b>	Page	: 1 of 14
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 06-MAR-2014
C-O-C number	: ----	Issue Date	: 14-MAR-2014
Sampler	: STEPHANIE BROOKES	No. of samples received	: 39
Order number	: 0237747	No. of samples analysed	: 32
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5	VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5,	04-MAR-2014	----	----	----	10-MAR-2014	18-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0	VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0,	05-MAR-2014	----	----	----	10-MAR-2014	19-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b>								
VP_SB07_3.0, VO_MW01_0.2, VO_SB01_0.2,	VP_SB08_3.0, VO_MW12_0.2, VP_MW02_0.2	04-MAR-2014	---	31-AUG-2014	----	14-MAR-2014	10-SEP-2014	✓
<b>Snap Lock Bag (EA200)</b>								
VP_SB06_3.0, VP_SB02_0.2, VP_SB04_2.0,	VP_SB05_3.0, VP_SB03_0.2, VP_MW02_2.0	05-MAR-2014	---	01-SEP-2014	----	14-MAR-2014	10-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	11-MAR-2014	31-AUG-2014	✓	12-MAR-2014	31-AUG-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0	05-MAR-2014	11-MAR-2014	01-SEP-2014	✓	12-MAR-2014	01-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	11-MAR-2014	01-APR-2014	✓	12-MAR-2014	01-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0	05-MAR-2014	11-MAR-2014	02-APR-2014	✓	12-MAR-2014	02-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_SB07_3.0, VP_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> BLK	25-FEB-2014	10-MAR-2014	11-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5 VP_SB08_3.0	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0 VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5 VP_SB08_3.0	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0 VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB07_3.0, VP_MW02_0.5	VP_SB08_3.0,	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB06_3.0, VP_SB02_0.5, VP_SB03_0.5, VP_MW02_2.0	VP_SB05_3.0, D01_050314_RP, VP_SB04_2.0,	05-MAR-2014	10-MAR-2014	12-MAR-2014	✓	10-MAR-2014	12-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5	VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5,	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0	VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0,	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB07_3.0, VP_SB03_3.0, VO_MW07_5.0, VO_MW04_2.0, VO_MW12_0.5, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0, VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0, VP_MW02_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VO_MW01_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	10-MAR-2014	18-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW04_2.0, VO_MW12_0.5 VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	11-MAR-2014	18-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VP_MW02_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	10-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW01_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	11-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TSP16, TSC BLK,	25-FEB-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB07_3.0, VO_SB03_3.0, VO_MW07_5.0, VP_MW02_0.5 VP_SB08_3.0, VO_MW16_4.6, VO_MW05_3.0	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	10-MAR-2014	18-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW04_2.0, VO_MW12_0.5 VO_MW01_0.5, VO_SB01_0.5	04-MAR-2014	10-MAR-2014	18-MAR-2014	✓	11-MAR-2014	18-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB06_3.0, VU_MW17_6.5, VP_SB02_0.5, VP_SB03_0.5, VP_SB04_2.0 VP_SB05_3.0, D01_050314_SB, D01_050314_RP, VU_MW19_0.5, VP_MW02_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	10-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW01_2.0	05-MAR-2014	10-MAR-2014	19-MAR-2014	✓	11-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK	25-FEB-2014	10-MAR-2014	11-MAR-2014	✓	10-MAR-2014	11-MAR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> R01_040314	04-MAR-2014	---	31-AUG-2014	----	11-MAR-2014	31-AUG-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> R01_040314	04-MAR-2014	---	01-APR-2014	----	11-MAR-2014	01-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_040314	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_040314	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_040314	04-MAR-2014	10-MAR-2014	11-MAR-2014	✓	11-MAR-2014	19-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R01_040314	04-MAR-2014	11-MAR-2014	18-MAR-2014	✓	11-MAR-2014	18-MAR-2014	✓

Page : 9 of 14  
 Work Order : ES1404881  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R01_040314	04-MAR-2014	11-MAR-2014	18-MAR-2014	✓	11-MAR-2014	18-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	6	59	10.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	33	12.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	33	12.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	33	6.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1404881**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : STEPHANIE BROOKES</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 06-MAR-2014</b></p> <p><b>Client Requested Due Date : 14-MAR-2014</b></p>	<p><b>Issue Date : 07-MAR-2014 13:43</b></p> <p><b>Scheduled Reporting Date : <b>14-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 2 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.6°C - Ice present</b></p> <p><b>No. of samples received : 39</b></p> <p><b>No. of samples analysed : 32</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample T01\_050314\_RP send to Envirolab**
- **Sample R01\_050314\_TA has not been received.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1404881-001	05-MAR-2014 10:00	VP_SB06_1.6	✓							
ES1404881-002	05-MAR-2014 10:00	VP_SB06_3.0		✓	✓					✓
ES1404881-003	05-MAR-2014 10:00	VP_SB05_3.0		✓	✓					✓
ES1404881-004	05-MAR-2014 15:00	VU_MW17_6.5								✓
ES1404881-005	05-MAR-2014 15:00	D01_050314_SB								✓
ES1404881-007	25-FEB-2014 15:00	TSP16				✓				
ES1404881-008	25-FEB-2014 15:00	BLK					✓			
ES1404881-009	25-FEB-2014 15:00	TSC				✓				
ES1404881-010	04-MAR-2014 15:00	VP_SB07_3.0		✓	✓					✓
ES1404881-011	04-MAR-2014 15:00	VP_SB08_3.0		✓	✓					✓
ES1404881-012	04-MAR-2014 15:00	VU_MW17_1.8	✓							
ES1404881-013	04-MAR-2014 15:00	VO_SB03_3.0					✓		✓	
ES1404881-014	04-MAR-2014 15:00	VO_MW16_4.6					✓		✓	
ES1404881-015	05-MAR-2014 08:30	VP_SB02_0.2		✓						
ES1404881-016	05-MAR-2014 08:30	VP_SB02_0.5			✓					✓
ES1404881-017	05-MAR-2014 08:30	D01_050314_RP			✓					✓
ES1404881-018	05-MAR-2014 08:30	VP_SB02_1.0	✓							
ES1404881-019	05-MAR-2014 09:45	VP_SB03_0.2		✓						
ES1404881-020	05-MAR-2014 09:45	VP_SB03_0.5			✓					✓
ES1404881-021	05-MAR-2014 11:30	VU_MW19_0.2	✓							
ES1404881-022	05-MAR-2014 11:30	VU_MW19_0.5								✓
ES1404881-023	05-MAR-2014 11:30	VU_MW19_1.0	✓							
ES1404881-024	04-MAR-2014 15:00	VO_MW07_5.0					✓		✓	
ES1404881-025	04-MAR-2014 15:00	VO_MW05_3.0					✓		✓	
ES1404881-026	04-MAR-2014 15:00	VO_MW04_2.0					✓		✓	
ES1404881-027	05-MAR-2014 15:00	VP_SB04_2.0		✓	✓					✓
ES1404881-028	05-MAR-2014 15:00	VO_MW01_2.0					✓		✓	
ES1404881-029	05-MAR-2014 15:00	VP_MW02_2.0		✓	✓					✓
ES1404881-030	04-MAR-2014 15:00	VO_MW01_0.2		✓						
ES1404881-031	04-MAR-2014 15:00	VO_MW01_0.5					✓		✓	
ES1404881-032	04-MAR-2014 15:00	VO_MW12_0.2		✓						
ES1404881-033	04-MAR-2014 15:00	VO_MW12_0.5					✓		✓	
ES1404881-034	04-MAR-2014 15:00	VO_SB01_0.2		✓						
ES1404881-035	04-MAR-2014 15:00	VO_SB01_0.5					✓		✓	
ES1404881-036	04-MAR-2014 15:00	VP_MW02_0.2		✓						



			(On Hold) SOIL No analysis requested	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-03 15 Metals (NEPM 2013 Suite -incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1404881-037	04-MAR-2014 15:00	VP_MW02_0.5			✓					✓
ES1404881-038	04-MAR-2014 15:00	VP_MW02_1.0	✓							
ES1404881-040	04-MAR-2014 15:00	VO_SB01_1.0	✓							

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27 TRH/BTEXN/PAH/Phenols&Metals
ES1404881-039	04-MAR-2014 15:00	R01_040314	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email [au.accounts@erm.com](mailto:au.accounts@erm.com)



# CHAIN OF CUSTODY

ALS Laboratory  
please tick

DATE/LAUNCH: 21 Burma Road, Pootah SA 5005  
Ph: 08 939 0800 E: info@als.com.au  
CHRISTIANE: 32 Strand Street, Stirling QLD 4053  
Ph: 07 3243 7222 E: christianc@als.com.au  
Q33 LABSTONE: 46 Calloway Drive, Clifton QLD 4060  
Ph: 07 7471 5800 E: info@als.com.au

DIMACKAY: 78 Harbour Road, Brackley QLD 4740  
Ph: 07 4544 0177 E: info@als.com.au  
DR-EDWARDS: 24 Westall Road, Springvale VIC 3171  
Ph: 03 8649 5600 E: sam@als.com.au  
DUNDEE: 27 Sutherland Road, Murrumbidgee NSW 2580  
Ph: 02 6372 6735 E: mudgee@als.com.au

DUNSWCASTLE: 5 Ross Dam Road, Warabook NSW 2304  
Ph: 02 4588 5438 E: sam@als.com.au  
DUNSWCASTLE: 413 Garry Road, North Ryde NSW 2113  
Ph: 02 9242 2063 E: northryde@als.com.au  
DUNSWCASTLE: 10 Hilda Way, Mudgee NSW 2850  
Ph: 02 3295 7935 E: mudgee@als.com.au

DRYDEN: 227 288 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8555 E: smithfield@als.com.au  
DUNSWCASTLE: 1-15 Derrin Court, Dingle QLD 4818  
Ph: 07 4783 0800 E: dingle@als.com.au  
DUNSWCASTLE: 59 Kenny Street, Wollongong NSW 2500  
Ph: 02 4253 9125 E: wollongong@als.com.au

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
SITE MANAGER: JOHN EWING  
CONTACT PH: 0401 776 290

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
ALS QUOTE NO.: SY-450-14

SAMPLER: *Stephanie Brookes* SAMPLER MOBILE: *0450099834* RELINQUISHED BY: *S. Brookes*  
COC emailed to ALS? (YES / NO) EDD FORMAT (or default):  
Email Reports to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com

RECEIVED BY: *Denise* DATE/TIME: *8/3* 1900  
RELINQUISHED BY: *EL* DATE/TIME: *6/3/17* 1700  
RECEIVED BY: *AS* DATE/TIME: *6/3/14* 1630

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:  
*Asbestos & AN*

ANALYSIS REQUIRED including SUITES (NB, Suite Codes must be listed to attract suite price)  
Where Metals are required specify Total (unfiltered bottle required) or Dissolved (filtered bottle required)

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	TRH Ultra Trace PAH	BTEX Ultra Trace Metals	Additional Information
I	VP-SB06-1.6	5.3.14 (AM)	s	1 bag, 2 jars	3	X	X	X	X	X	X	X	X	X	X	X	X	HOLD
II	VP-SB06-3.0	5.3.14 (AM)	s	1 bag, 1 jar	2	X	X	X	X	X	X	X	X	X	X	X	X	
III	VP-SB05-3.0	5.3.14 (AM)	s	1 bag, 1 jar	2	X	X	X	X	X	X	X	X	X	X	X	X	
IV	VU-MU017-6.5	5.3.14 (PM)	s	1 x jar	1	X	X	X	X	X	X	X	X	X	X	X	X	
V	DD-050814-SB	5.3.14 (PM)	s	1 x jar	1	X	X	X	X	X	X	X	X	X	X	X	X	
VI	ROL-050314-TA	5/3/14	W		4	X	X	X	X	X	X	X	X	X	X	X	X	
VII	TS P16	23/2/14	W		4	X	X	X	X	X	X	X	X	X	X	X	X	
VIII	BLK		s															
IX	TS C		s															
X			s															
					TOTAL													

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/C Preserved; S = Sodium Hydroxide Preserved Plastic;  
V = VOA Vial HD Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulphur Preserved; AV = Airright Unpreserved Vial SG = Sulphur Preserved Amber Glass; H = HCl F  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solns; B = Unpreserved Bag.

Environmental Division  
Sydney  
Work Order  
**ES1404881**

Barcode:

Telephone: + 61-2-8784 8555

Plastic  
Sulphur Preserved Plastic; F = Formaldehyde Preserved Glass;

DATE: 21. June 2014  
 Ph: 08 859 0590 E: adelaide@alsglobal.com  
 CBRISBANE 32 Sand Street Stafford QLD 4053  
 Ph: 07 3243 7222 E: samuel@alsglobal.com  
 QLD/STONE 46 Callum Street Chirnside QLD 4680  
 Ph: 07 247 5600 E: qldstone@alsglobal.com

DARWIN 28 Unwin Road Darwin QLD 4740  
 Ph: 07 5944 0177 E: melb@alsglobal.com  
 MELBOURNE 24 Wormal Road Springvale VIC 3171  
 Ph: 03 8549 5600 E: sam@alsglobal.com  
 M.D. 27 Sydney Road Macquarie NSW 2150  
 Ph: 02 6372 6735 E: melb@alsglobal.com

NEWCASTLE 5 Rose Gully Road Wyndoch NSW 2304  
 Ph: 02 4688 8431 E: sam@alsglobal.com  
 CANTONMENT 418 Garry Place North Ryde NSW 2114  
 Ph: 02 4242 2085 E: new@alsglobal.com  
 PERTH 10 Hopton Way Malpas WA 6000  
 Ph: 08 3209 7855 E: sam@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
 Ph: 02 8784 8555 E: sydney@alsglobal.com  
 LITTONSWALLE 14-15 Derrin Court Bontho QLD 4618  
 Ph: 07 4756 0000 E: bontho@alsglobal.com  
 MULLINGONG 69 Leary Street Mullingong NSW 2590  
 Ph: 02 6223 3125 E: mullingong@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** *Stephanie Brookes* **SAMPLER MOBILE:** *0150099834*  
**COC emailed to ALS?** (YES / NO) **EDD FORMAT** (or default):  
 Email Reports to (will default to PM if no other addresses are listed): *symphony.della.coast@erm.com*  
 Email Invoice to (will default to PM if no other addresses are listed): *symphony.della.coast@erm.com*  
**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (last due date)  
 Non Standard or urgent TAT (last due date)  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
**ALS QUOTE NO.:** SY-050-14

**RELINQUISHED BY:** *S Brookes* **DATE/TIME:** *4.3.14*  
**RECEIVED BY:** *DL* **DATE/TIME:** *6/3/14 16:30*  
**RELINQUISHED BY:** *ET* **DATE/TIME:** *6/3/14 17:00*  
**RECEIVED BY:** *Dani* **DATE/TIME:** *6/3 19:00*

ALS USE	SAMPLE DETAILS MATRIX(SOLID(S)/WATER(W))	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
---------	---	-----------------------	--	------------------------

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions or samples requiring specific QC analysis etc.	
10	VP-S B07-3.0	4.3.14	S	1 jar + 1 bag ACM		2	X		X	X	X									
11	VP-SB08-3.0	4.3.14	S	1 jar + 1 bag ACM		2	X		X	X	X									
12	VU-MMW17-1.8	4.3.14	S	1 jar		1														HOLD
13	VO-SP03-3.0	4.3.14	S	1 jar		1			X	X	X									
14	VO-MMW16-4.6	4.3.14	S	1 jar		1			X	X	X									
						<b>TOTAL</b>														

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved AP - Airflight Unpreserved Plastic  
 V = VOA Vial HQ Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specialized bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Z = Zinc Asbestos Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfidic Solids; B = Unpreserved Bag

# CHAIN OF CUSTODY

ALS Environmental  
ALS Laboratory  
please tick ->

DATE: 21/01/2014  
 PH: 08 8295 0980 E: [info@als.com.au](mailto:info@als.com.au)  
 QBRISBANE 33 Sharn Street Sturt Sturt QLD 4053  
 PH: 07 3243 7222 E: [samples@als.com.au](mailto:samples@als.com.au)  
 QLD LABORATORY 46 Callenderon Drive Clifton QLD 4680  
 PH: 07 7471 5600 E: [qld@als.com.au](mailto:qld@als.com.au)

DATE: 29/01/2014  
 PH: 07 4944 0177 E: [info@als.com.au](mailto:info@als.com.au)  
 MELBOURNE 24 Wicks Road Springvale VIC 3171  
 PH: 03 8519 9000 E: [samples.melbourne@als.com.au](mailto:samples.melbourne@als.com.au)  
 LABORATORY 27 Sydney Road Mulgrave NSW 2360  
 PH: 02 6372 6735 E: [info@als.com.au](mailto:info@als.com.au)

DATE: 05/02/2014  
 PH: 02 4968 6433 E: [samples.nsw@als.com.au](mailto:samples.nsw@als.com.au)  
 DUNEDIN 4/13 Gerry Place North Beach NSW 2541  
 PH: 02 4242 2068 E: [info@als.com.au](mailto:info@als.com.au)  
 DUNEDIN 101 Wood Way Mullumbidgee NSW 2585  
 PH: 08 8200 7965 E: [samples.nsw@als.com.au](mailto:samples.nsw@als.com.au)

DATE: 27/02/2014  
 PH: 02 8784 8555 E: [samples.syd@als.com.au](mailto:samples.syd@als.com.au)  
 DUNEDIN 14-15 Desma Court Berrig QLD 4818  
 PH: 07 4785 0600 E: [samples.environmental@als.com.au](mailto:samples.environmental@als.com.au)  
 LABORATORY 99 Kewey Street Wetherill NSW 2300  
 PH: 02 4225 9725 E: [pszw@als.com.au](mailto:pszw@als.com.au)

CLIENT: ERM  
 OFFICE: PYRMONT  
 PROJECT: VALDES POINT POWER STATION  
 ORDER NUMBER: 0237747  
 SITE MANAGER: JOHN EWING  
 CONTACT PH: 0401 776 280

TURNAROUND REQUIREMENTS:  
 Standard TAT (Just due date)  
 Non Standard or urgent TAT (Just due date)  
 Ultra Trace Organics

ALS QUOTE NO.: SY-050-14  
 COC SEQUENCE NUMBER (Circle):  
 COC: 1 2 3 4 5 6 7  
 OR: 1 2 3 4 5 6 7

SAMPLER: Rose Pascoe  
 SAMPLER MOBILE: EDD FORMAT (or default):  
 COC emailed to ALS? (YES / NO)  
 Email Reports to (will default to PM if no other addresses are listed): [symphony.della.coast@erm.com](mailto:symphony.della.coast@erm.com)  
 Email Invoice to (will default to PM if no other addresses are listed): [symphony.della.coast@erm.com](mailto:symphony.della.coast@erm.com)

RELIQUISHED BY: S. Brookes  
 DATE/TIME: 6-3-14  
 RECEIVED BY: [Signature]  
 DATE/TIME: 6/3/14 16:50  
 RECEIVED BY: [Signature]  
 DATE/TIME: 6/3/14 17:02

FORN LABORATORY USE ONLY (Circle)  
 Category:  Soil  Air  Water  Sediment  Other  
 Method:  Standard  Custom  
 Random Sample:  Yes  No  
 On-site Use:  Yes  No

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
15	VP-SB02-0-2	5-3-14 0830	S	ACM Bag	1				X									
16	VP-SB02-0-5	5-3-14 0830	S	Standard suite jar	1	X		X		X								
17	DP1-050314-RP	5-3-14 0830	S	" "	1	X		X		X								
-	TO1-050314-RP	5-3-14 0830	S	" "	1	X		X		X								
18	VP-SB02-1-0	5-3-14 0830	S	TOC jar, PSD bag	2													HOLD
19	VP-SB03-0-2	5-3-14 0945	S	ACM bag	1					X								
20	VP-SB03-0-5	5-3-14 0945	S	Standard suite jar, TOC jar, PSD bag	3	X		X		X								
21	VP-MM19-0-2	5-3-14 1130	S	ACM bag	1													
22	VP-MM19-0-5	5-3-14 1130	S	Standard suite jar	1	X		X										
23	VP-MM19-1-0	5-3-14 1130	S	TOC jar, PSD bag	2													
TOTAL																		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
 V = VOA Vial HQ Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HC Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfine Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acidic Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.





# CHAIN OF CUSTODY

ALS Laboratory  
Please tick ->

ENT: ERM

PLACE: PYRMONT

SUBJECT: VALES POINT POWER STATION

DER NUMBER: 0237747

EMANAGER: JOHN EWING

WRITER: *Chris Masters*

C emailed to ALST? (YES / NO)

all Reports to (will default to PM if no other addresses are listed): symphony.delloccaso@erm.com

all Invoices to (will default to PM if no other addresses are listed): symphony.delloccaso@erm.com

MENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNOVER REQUIREMENTS:  Standard TAT (List due date):

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.: SY450-14

CONTACT PH: 0401 776 290

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY: *S. Brookes*

DATE/TIME: *6.3.14*

RECEIVED BY: *DR*

DATE/TIME: *6/3/14 1630*

RELINQUISHED BY: *DR*

DATE/TIME: *6/3/14 1700*

RECEIVED BY: *Davis*

DATE/TIME: *6/3 1900*

FOR LABORATORY USE ONLY (Circle)

COC SEQUENCE NUMBER (Circle)

Free Ice / frozen Ice blocks present upon receipt?

Random Sample Temperature on Receipt:

Other comment:

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (food filtered bottle required).										Additional Information						
AB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

11124	VO-MW07-5.0	4.3.14	S	2 jars 1 bag	"		X	X	X										
11125	VO-MW05-3.0	4.3.14	S	"	"		X	X	X										
11126	VO-MW04-2.0	4.3.14	S	"	"		X	X	X										
			S																
			S																
			S																
			S																
			S																
			S																
			S																

er Containr Codes: P = Unpreserved Plastic; K = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AT = Airtight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Zinc Asacetic Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.





**CHAIN OF CUSTODY**  
 ALS Laboratory  
 please tick →

LAB ELAIDE 21 Berni Road, Portiro SA 5365  
 Ph: 08 8589 0666 E: adelaide@alsglobal.com  
 Q3719 BAYE 32 Strand Street, Stirling QLD 4053  
 Ph: 07 3243 7222 E: samples.stirling@alsglobal.com  
 Q3720 ADSTONE 46 Calverley Drive, Clifton QLD 4080  
 Ph: 07 4771 8500 E: gloucester@alsglobal.com

DMC CKX 75 Lawson Road, Mackay QLD 4740  
 Ph: 07 4944 6177 E: mackay@alsglobal.com  
 DME BOURNE 24 Vesival Road, Springfield VIC 3171  
 Ph: 33 6549 6600 E: samples.melbourne@alsglobal.com  
 DMIDJEE 27 Sydney Road, Midjorie NSW 2560  
 Ph: 02 6372 6735 E: midjorie@alsglobal.com

DNE WCASTLE 5 Foss Gully Road, Warabook NSW 2304  
 Ph: 02 4658 9433 E: samples.newcastle@alsglobal.com  
 DNO WYRA 413 Garry Place, North Wyalong NSW 2541  
 Ph: 024433 2083 E: roma@alsglobal.com  
 DPERTH 10150 Way Majora, WA 6150  
 Ph: 08 9209 7658 E: samples.perth@alsglobal.com

CSYDNEY 277 299 Woodbank Road, Smithfield NSW 2154  
 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com  
 DTOWNSVILLE 14-15 James Court, North QLD 4818  
 Ph: 07 4796 0500 E: townsville@alsglobal.com  
 DMQLONGDON 59 Kenny Street, Mulgoona NSW 2550  
 Ph: 02 4225 3125 E: portland@alsglobal.com

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

SITE MANAGER: JOHN EWING

SAMPLER: ROSE PASCOE

COC emailed to ALS? (YES / NO)

Email Reports to (will default to PM if no other addresses are listed): symphony.dela@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.dela@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  
 Standard TAT (last due date)  
 Non Standard or urgent TAT (last due date)

ALS QUOTE NO.: SY-050-14

RELINQUISHED BY: S. Broekel

DATE/TIME: 6-3-14

RECEIVED BY: ec

DATE/TIME: 6/3/14 1635

RELINQUISHED BY: ec

DATE/TIME: 6/3/14 1702

RECEIVED BY: D. J.

DATE/TIME: 6/3 1600

FOR LABORATORY USE ONLY (COC)	
Category / Test Item	Yes / No / N/A
Field Use / In-situ / Calibrated / Pre-emptive / Co-located	Yes
Random Sample / Expedite on Receipt / Other Comment	No

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	prefer to	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information	
30	VO-MW01-0.2	4.3.14	S	ACM Bag		1			X											
31	VO-MW01-0.5		S	St. jar, TOL jar, PSD Bag		3		X	X											
32	VO-MW12-0.2		S	ACM Bag		1			X											
33	VO-MW12-0.5		S	St. jar, TOL jar, PSD Bag		3		X	X											
	<del>VO-MW12-1.0</del>		S	<del>St. jar, TOL jar, PSD Bag</del>		<del>1</del>														HOLD
34	VO-SB01-0.2		S	ACM Bag		1			X											
35	VO-SB01-0.5		S	St. jar, TOL jar, PSD Bag		3		X	X											
36	VP-MW02-0.2		S	ACM Bag		1			X											
37	VP-MW02-0.5		S	St. jar, TOL jar, PSD Bag		3		X	X											
38	VP-MW02-1.0		S	St. jar (HOLD)		1			X											HOLD.
39	ZOL-040314	4/3/14	W*			4	X		X											
40	<del>VO-SB01-1.0</del>	4/3/14	W*	TOL jar, PSD Bag		2	X		X											HOLD
<b>TOTAL</b>																				

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic; V = VOA Vial HQ Preserved; VS = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfur Preserved; AV = Airflight Unpreserved Vial SG = Sulfur Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfur Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acidic Preserved Bottle; E = EDTA Preserved Bottles; ST = Stannic Bottle; ASS = Plastic Bag for Acid Substrate Solids; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405121</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : GP <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 29  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 10-MAR-2014 <b>Issue Date</b> : 18-MAR-2014  <b>No. of samples received</b> : 28 <b>No. of samples analysed</b> : 26
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
		Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG020: Positive result for sample ES1405121-17 has been confirmed by reanalysis.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	VO_MW13_3.7
				07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
Compound	CAS Number	LOR	Unit	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	7.2	20.0	14.1	11.8
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	1000	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	1.00	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	10	20	<10
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	64	6	7	8
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	<2
Copper	7440-50-8	5	mg/kg	----	7	6	7	<5
Lead	7439-92-1	5	mg/kg	----	5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg	----	----	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	----	7	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	9	15	15
Zinc	7440-66-6	5	mg/kg	----	34	<5	34	24
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	VO_MW13_3.7
				07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
Compound	CAS Number	LOR	Unit	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	VO_MW13_3.7
				07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
Compound	CAS Number	LOR	Unit	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
<b>EP074H: Naphthalene</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	VO_MW13_3.7
				07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
Compound	CAS Number	LOR	Unit	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
<b>EP074H: Naphthalene - Continued</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	<5	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	VO_MW13_3.7
				07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
				ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	97.3	87.7	102	104
Toluene-D8	2037-26-5	0.1	%	----	99.3	87.7	104	102
4-Bromofluorobenzene	460-00-4	0.1	%	----	90.3	77.1	101	97.4
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	97.0	82.7	82.0	81.4
2-Chlorophenol-D4	93951-73-6	0.1	%	----	104	88.0	88.8	87.0
2,4,6-Tribromophenol	118-79-6	0.1	%	----	91.5	81.0	79.6	76.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VP_MW01_4.0	VP_MW01_7.5	VO_MW12_7.5	VO_SB01_3.0	V0_MW13_3.7
Client sampling date / time	07-MAR-2014 09:45	07-MAR-2014 10:15	07-MAR-2014 13:45	07-MAR-2014 12:00	07-MAR-2014 15:10
Compound	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1405121-001	ES1405121-002	ES1405121-003	ES1405121-004	ES1405121-006
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	112	99.0	98.0	97.2
Anthracene-d10	1719-06-8	0.1	%	----	108	93.0	93.6	91.8
4-Terphenyl-d14	1718-51-0	0.1	%	----	113	99.8	99.9	98.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	97.8	88.1	103	105
Toluene-D8	2037-26-5	0.1	%	----	94.3	83.0	98.5	97.0
4-Bromofluorobenzene	460-00-4	0.1	%	----	95.1	81.4	108	102



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_070314_GP	TRIP SPIKE 18	TRIP BLANK 18	TSC 18	VN_SB05_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-007	ES1405121-008	ES1405121-009	ES1405121-010	ES1405121-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.7	----	----	----	9.2
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	360
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	5	----	----	----	<2
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	----	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	----	----	----	<5
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	10	----	----	----	<5
Zinc	7440-66-6	5	mg/kg	20	----	----	----	15
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_070314_GP	TRIP SPIKE 18	TRIP BLANK 18	TSC 18	VN_SB05_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-007	ES1405121-008	ES1405121-009	ES1405121-010	ES1405121-011
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_070314_GP	TRIP SPIKE 18	TRIP BLANK 18	TSC 18	VN_SB05_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-007	ES1405121-008	ES1405121-009	ES1405121-010	ES1405121-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_070314_GP	TRIP SPIKE 18	TRIP BLANK 18	TSC 18	VN_SB05_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-007	ES1405121-008	ES1405121-009	ES1405121-010	ES1405121-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				D01_070314_GP	TRIP SPIKE 18	TRIP BLANK 18	TSC 18	VN_SB05_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-007	ES1405121-008	ES1405121-009	ES1405121-010	ES1405121-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.7	<0.2	0.9	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	19.9	<0.5	24.8	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.3	<0.5	2.7	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	10.5	<0.5	12.7	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	4.4	<0.5	5.3	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	14.9	<0.5	18.0	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	37.8	<0.2	46.4	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	113	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	102	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.4	----	----	----	81.6
2-Chlorophenol-D4	93951-73-6	0.1	%	87.5	----	----	----	87.6
2,4,6-Tribromophenol	118-79-6	0.1	%	77.3	----	----	----	77.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.8	----	----	----	96.6
Anthracene-d10	1719-06-8	0.1	%	91.2	----	----	----	92.8
4-Terphenyl-d14	1718-51-0	0.1	%	98.8	----	----	----	99.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	99.6	105	88.4	90.0
Toluene-D8	2037-26-5	0.1	%	108	105	112	92.9	92.8
4-Bromofluorobenzene	460-00-4	0.1	%	108	107	112	97.1	97.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW06_0.2	VN_MW07_0.5	VN_MW08_0.2	VN_MW08_5.0	D01_070314_SB
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-012	ES1405121-013	ES1405121-014	ES1405121-015	ES1405121-016
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.1	15.5	10.8	13.6	12.8
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	<10	<10	10	10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	5	<2	4	6	5
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	10	<5	<5
Manganese	7439-96-5	5	mg/kg	<5	<5	17	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	19	10	14	11	10
Zinc	7440-66-6	5	mg/kg	15	8	53	6	5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW06_0.2	VN_MW07_0.5	VN_MW08_0.2	VN_MW08_5.0	D01_070314_SB
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-012	ES1405121-013	ES1405121-014	ES1405121-015	ES1405121-016
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VN_MW06_0.2	VN_MW07_0.5	VN_MW08_0.2	VN_MW08_5.0	D01_070314_SB
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-012	ES1405121-013	ES1405121-014	ES1405121-015	ES1405121-016
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.2	81.2	77.7	81.2	81.4
2-Chlorophenol-D4	93951-73-6	0.1	%	91.1	87.1	82.2	87.1	87.4
2,4,6-Tribromophenol	118-79-6	0.1	%	86.9	78.7	96.7	83.2	83.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.8	95.9	91.6	97.0	98.0
Anthracene-d10	1719-06-8	0.1	%	94.5	91.9	89.9	92.6	93.7
4-Terphenyl-d14	1718-51-0	0.1	%	101	96.7	95.2	98.5	100
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.3	89.1	94.7	92.8	88.4
Toluene-D8	2037-26-5	0.1	%	89.3	90.2	89.1	88.9	88.9
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	95.2	95.8	96.2	94.4



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW13_0.2	VO_MW13_0.5	D01_070314_RP	VO_MW13_1.0	VN_MW09_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-018	ES1405121-019	ES1405121-020	ES1405121-021	ES1405121-023
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	4.2	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	10.6	9.6	----	10.0
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	716	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.716	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	----	<5
Barium	7440-39-3	10	mg/kg	----	10	10	----	<10
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	----	<1
Boron	7440-42-8	50	mg/kg	----	<50	<50	----	<50
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	----	2	3	----	7
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	----	<2
Copper	7440-50-8	5	mg/kg	----	<5	<5	----	<5
Lead	7439-92-1	5	mg/kg	----	<5	<5	----	<5
Manganese	7439-96-5	5	mg/kg	----	<5	<5	----	<5
Nickel	7440-02-0	2	mg/kg	----	<2	<2	----	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	----	<5
Vanadium	7440-62-2	5	mg/kg	----	11	22	----	20
Zinc	7440-66-6	5	mg/kg	----	7	6	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	<0.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW13_0.2	VO_MW13_0.5	D01_070314_RP	VO_MW13_1.0	VN_MW09_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-018	ES1405121-019	ES1405121-020	ES1405121-021	ES1405121-023
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW13_0.2	VO_MW13_0.5	D01_070314_RP	VO_MW13_1.0	VN_MW09_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-018	ES1405121-019	ES1405121-020	ES1405121-021	ES1405121-023
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	----	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>82.0</b>	<b>90.7</b>	----	<b>82.3</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	----	<b>85.8</b>	<b>94.4</b>	----	<b>88.9</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	----	<b>86.8</b>	<b>91.5</b>	----	<b>82.7</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	<b>96.4</b>	<b>100</b>	----	<b>91.6</b>
Anthracene-d10	1719-06-8	0.1	%	----	<b>91.3</b>	<b>95.2</b>	----	<b>93.1</b>
4-Terphenyl-d14	1718-51-0	0.1	%	----	<b>97.9</b>	<b>101</b>	----	<b>99.0</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	<b>90.6</b>	<b>86.2</b>	----	<b>87.9</b>



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW13_0.2	VO_MW13_0.5	D01_070314_RP	VO_MW13_1.0	VN_MW09_0.5
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405121-018	ES1405121-019	ES1405121-020	ES1405121-021	ES1405121-023
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	----	92.6	81.6	----	83.2
4-Bromofluorobenzene	460-00-4	0.1	%	----	94.6	87.3	----	87.7



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB04_0.5	VN_MW12_0.2	VN_MW05_0.5	VN_SB02_0.2	----
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405121-024	ES1405121-025	ES1405121-026	ES1405121-027	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.0	20.3	10.3	7.0	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	10	<10	10	<10	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	3	12	5	<2	----
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	6	5	<5	<5	----
Manganese	7439-96-5	5	mg/kg	<5	<5	<5	<5	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	17	32	17	7	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB04_0.5	VN_MW12_0.2	VN_MW05_0.5	VN_SB02_0.2	----
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405121-024	ES1405121-025	ES1405121-026	ES1405121-027	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VN_SB04_0.5	VN_MW12_0.2	VN_MW05_0.5	VN_SB02_0.2	----
				07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	07-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405121-024	ES1405121-025	ES1405121-026	ES1405121-027	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	84.6	81.3	84.0	82.2	----
2-Chlorophenol-D4	93951-73-6	0.1	%	80.4	83.0	83.7	83.2	----
2,4,6-Tribromophenol	118-79-6	0.1	%	85.1	60.8	62.8	65.5	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	90.1	80.9	85.7	80.8	----
Anthracene-d10	1719-06-8	0.1	%	88.8	91.8	89.0	90.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.4	84.2	83.9	83.5	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	97.9	95.0	87.4	86.8	----
Toluene-D8	2037-26-5	0.1	%	94.8	87.8	81.2	86.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.5	90.8	86.1	88.8	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_070314_GP	R01_070314_SB	---	---	---
				07-MAR-2014 14:15	07-MAR-2014 15:00	---	---	---
				ES1405121-005	ES1405121-017	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	---	---	---
Beryllium	7440-41-7	0.001	mg/L	---	<0.001	---	---	---
Barium	7440-39-3	0.001	mg/L	---	<b>0.001</b>	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	---	---	---
Cobalt	7440-48-4	0.001	mg/L	---	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	---	---	---
Manganese	7439-96-5	0.001	mg/L	---	<0.001	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	---	---	---
Selenium	7782-49-2	0.01	mg/L	---	<0.01	---	---	---
Vanadium	7440-62-2	0.01	mg/L	---	<0.01	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	<b>0.050</b>	---	---	---
Boron	7440-42-8	0.05	mg/L	---	<0.05	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_070314_GP	R01_070314_SB	---	---	---
				07-MAR-2014 14:15	07-MAR-2014 15:00	---	---	---
				ES1405121-005	ES1405121-017	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1.1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1.1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1.2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_070314_GP	R01_070314_SB	---	---	---
				07-MAR-2014 14:15	07-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405121-005	ES1405121-017	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_070314_GP	R01_070314_SB	---	---	---
				07-MAR-2014 14:15	07-MAR-2014 15:00	---	---	---
				ES1405121-005	ES1405121-017	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_070314_GP	R01_070314_SB	----	----	----
				07-MAR-2014 14:15	07-MAR-2014 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1405121-005	ES1405121-017	----	----	----
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	116	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	31.3	30.1	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	80.3	83.6	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	45.7	58.3	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	53.6	78.4	----	----	----
Anthracene-d10	1719-06-8	0.1	%	73.8	96.3	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	74.0	80.7	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	99.2	----	----	----
Toluene-D8	2037-26-5	0.1	%	110	103	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	112	97.2	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VP_MW01_4.0 - 07-MAR-2014 09:45	Mid yellow-brown clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VO_MW13_0.2 - 07-MAR-2014 15:00	Mid brown clay soil with red and grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405121</b>	<b>Page</b>	<b>: 1 of 39</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR</b> <b>33 SAUNDERS STREET, PYRMONT NSW 2009</b> <b>LOCKED BAG 24</b> <b>BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 10-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 18-MAR-2014</b>
<b>Sampler</b>	<b>: GP</b>	<b>No. of samples received</b>	<b>: 28</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 26</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
		Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3334848)</b>									
ES1404799-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.3	8.2	0.0	0% - 20%
ES1405023-008	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.0	3.9	2.5	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3334042)</b>									
ES1405120-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.7	19.0	3.6	0% - 50%
ES1405121-013	VN_MW07_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.5	15.1	2.4	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3334043)</b>									
ES1405121-026	VN_MW05_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.3	10.9	5.6	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3339094)</b>									
ES1405120-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	13	15.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	11	11.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	40	17.7	No Limit
ES1405444-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	3	32.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	<5	55.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	39	41	5.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	67	87	26.2	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3340057)</b>									
ES1405121-003	VO_MW12_7.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	6	27.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	9	8	17.3	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3340057) - continued</b>									
ES1405121-003	VO_MW12_7.5	EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405121-019	VO_MW13_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	15	27.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	7	6	17.3	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3339095)</b>									
ES1405120-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3340058)</b>									
ES1405121-003	VO_MW12_7.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405121-019	VO_MW13_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405155-005	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3334824) - continued</b>											
ES1405121-002	VP_MW01_7.5	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit				
ES1405155-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
		<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3334824)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3334824) - continued</b>									
ES1405121-002	VP_MW01_7.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405155-005	Anonymous	EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3334824)</b>									
ES1405121-002	VP_MW01_7.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405155-005	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3333652)</b>									
ES1405120-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3333652) - continued</b>									
ES1405120-005	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405121-007	D01_070314_GP	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335091)</b>									
ES1405121-024	VN_SB04_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405127-012	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3333652)</b>									
ES1405120-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405121-007	D01_070314_GP	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335091)</b>									
ES1405121-024	VN_SB04_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335091) - continued</b>									
ES1405121-024	VN_SB04_0.5	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405127-012	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3333651)</b>									
ES1405120-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3333651) - continued</b>									
ES1405120-005	Anonymous	EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405121-007	D01_070314_GP	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3333776)</b>									
ES1405120-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405121-012	VN_MW06_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3333984)</b>									
ES1405127-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405127-012	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3334823)</b>									
ES1405121-002	VP_MW01_7.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405155-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335090)</b>									
ES1405121-024	VN_SB04_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405127-012	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3333651)</b>									
ES1405120-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405121-007	D01_070314_GP	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3333776)</b>									
ES1405120-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405121-012	VN_MW06_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3333984)</b>									
ES1405127-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405127-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3334823)</b>									
ES1405121-002	VP_MW01_7.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405155-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335090)</b>									
ES1405121-024	VN_SB04_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335090) - continued</b>									
ES1405121-024	VN_SB04_0.5	EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405127-012	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3333776)</b>									
ES1405120-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405121-012	VN_MW06_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3333984)</b>									
ES1405127-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405127-012	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3334823)</b>									
ES1405121-002	VP_MW01_7.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3334823) - continued</b>										
ES1405121-002	VP_MW01_7.5	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1405155-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>Sub-Matrix: WATER</b>										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3335348)</b>										
ES1404976-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0002	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.052	0.053	0.0	0% - 20%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.508	0.516	1.5	0% - 20%	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.026	0.027	0.0	0% - 20%	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.835	0.782	6.6	0% - 20%	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit	
ES1405107-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.109	0.110	1.3	0% - 20%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.393	0.396	0.8	0% - 20%	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.047	0.047	0.0	0% - 20%	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.071	0.068	4.1	0% - 20%	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.005	40.5	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.02	<0.01	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.64	0.69	7.8	0% - 50%	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3333600)</b>									
ES1405063-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405064-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1405192-005	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1405121-005	R01_070314_GP	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		<b>EP074B: Oxygenated Compounds (QC Lot: 3336941)</b>							
		ES1405192-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50
EP074: 2-Butanone (MEK)	78-93-3			50	µg/L	<50	<50	0.0	No Limit
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1			50	µg/L	<50	<50	0.0	No Limit
EP074: 2-Hexanone (MBK)	591-78-6			50	µg/L	<50	<50	0.0	No Limit
ES1405192-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1405192-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1405192-005	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074D: Fumigants (QC Lot: 3336941) - continued</b>											
ES1405192-005	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336941)</b>											
ES1405121-005	R01_070314_GP	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		ES1405192-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
				EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
				EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
				EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
EP074: cis-1,2-Dichloroethene	156-59-2			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,1,1-Trichloroethane	71-55-6			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,1-Dichloropropylene	563-58-6			5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336941) - continued</b>									
ES1405192-005	Anonymous	EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	17	18	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1405192-005	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074G: Trihalomethanes (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1405192-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3336941)</b>									
ES1405121-005	R01_070314_GP	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1405192-005	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3333891)</b>									
ES1405070-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3333891)</b>							
ES1405070-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3333891) - continued</b>										
ES1405070-002	Anonymous	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3333890)</b>										
ES1405070-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1405192-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	7150	7090	0.9	No Limit	
ES1405118-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3333890)</b>										
ES1405070-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1405192-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	7550	7480	0.9	No Limit	
ES1405118-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1405192-005	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
ES1405118-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	3270	3230	1.4	0% - 20%	
		EP080: Toluene	108-88-3	2	µg/L	462	453	2.0	No Limit	





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3339094)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.6	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	104	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3340057)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	110	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	101	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	115	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	118	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	105	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	113	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	113	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	121	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339095)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.2	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3340058)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	78.3	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3334824)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	101	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	96.8	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.7	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	98.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3334824) - continued</b>									
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	97.3	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	93.2	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3334824)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	77.9	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	109	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	109	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	108	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3334824)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	78.4	54	126	
<b>EP074D: Fumigants (QCLot: 3334824)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	84.8	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	103	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	84.3	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	80.2	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	95.9	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3334824)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	48.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	60.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	67.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	79.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	84.0	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	80.4	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	87.9	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	83.6	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	95.2	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	95.8	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	103	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	83.8	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	94.1	64	128	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3334824) - continued</b>									
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	78.0	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	98.0	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	100	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	97.7	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	105	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	108	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	108	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	78.0	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	87.7	55	129	
EP074: 1,1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	99.8	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	73.2	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	79.3	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	56.8	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3334824)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	105	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	107	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.4	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.5	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	102	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	60.2	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	62.8	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3334824)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	91.6	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.3	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	75.0	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	85.9	60	126	
<b>EP074H: Naphthalene (QCLot: 3334824)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	95.4	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333652)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	82.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	83.8	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	83.8	69	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333652) - continued</b>									
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	85.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	81.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	84.7	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	90.1	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	70.4	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	22.0	10	57	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335091)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	84.4	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	86.4	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	86.1	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	89.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	88.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	88.9	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.5	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	92.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	90.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	88.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	29.7	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333652)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	88.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	90.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	89.2	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	89.6	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	93.6	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	92.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	90.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	91.9	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	86.3	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	90.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	80.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	92.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	85.6	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	81.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.0	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	72.4	114	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335091)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335091) - continued</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	97.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	87.1	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	86.6	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	86.7	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	82.1	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	86.2	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	81.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	82.8	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	83.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	89.9	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.2	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	88.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	96.6	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	93.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333651)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	106	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	110	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.9	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333776)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	80.8	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333984)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.7	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3334823)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.7	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335090)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	106	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333651)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	83.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	107	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	91.7	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333776)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	76.0	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333984)</b>									





Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333984) - continued</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	75.0	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3334823)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.1	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335090)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	92.3	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	107	63	131
<b>EP080: BTEXN (QCLot: 3333776)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	79.5	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	82.8	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	82.2	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.6	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	108	62	138
<b>EP080: BTEXN (QCLot: 3333984)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.0	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	85.8	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.5	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	80.5	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.4	62	138
<b>EP080: BTEXN (QCLot: 3334823)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.3	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.0	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.1	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	90.1	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	92.2	62	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3335348)</b>								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	79	121
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	114	76	120



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3335348) - continued</b>									
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	83	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	113	68	128	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	101	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	119	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333600)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	112	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3336941)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	106	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	112	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	102	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	106	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	107	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	106	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	106	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	105	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	105	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3336941)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	93.8	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	111	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	111	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	108	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3336941)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	99.9	72.8	127	
<b>EP074D: Fumigants (QCLot: 3336941)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	95.0	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	110	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	84.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	74.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	100	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336941)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336941) - continued</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	102	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	98.8	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	125	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	109	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	110	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	118	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	110	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	85.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	113	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	109	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	115	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	96.4	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	118	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	116	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	109	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	98.0	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	114	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	121	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	83.4	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.4	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	96.3	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	112	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	114	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	76.9	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	91.3	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	119	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336941)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	# 118	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	112	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	107	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	106	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	115	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	115	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	112	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	111	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	118	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3336941)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074G: Trihalomethanes (QCLot: 3336941) - continued</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	107	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	91.7	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	84.0	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	97.8	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3336941)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	119	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333891)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	67.0	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	74.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	80.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	88.2	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	75.9	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	79.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	77.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	74.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	73.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	81.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	44.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333891)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	78.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.7	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	70.5	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333891) - continued</b>								
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	82.4	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	77.9	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	84.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	90.7	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.3	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	92.5	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	75.1	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	82.4	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	85.9	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.8	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	67.0	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	96.8	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333890)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.0	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	102	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.6	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336942)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.0	75	127
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339701)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	92.3	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333890)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	90.0	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	104	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	102	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336942)</b>								



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336942) - continued</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	102	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339701)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	94.4	75	127	
<b>EP080: BTEXN (QCLot: 3336942)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	95.4	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.1	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	93.2	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.4	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	81.7	70	124	
<b>EP080: BTEXN (QCLot: 3339701)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	112	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.8	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	102	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	116	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3339094)</b>								
ES1405120-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	107	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	103	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	118	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3340057)</b>								
ES1405121-003	VO_MW12_7.5	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3340057) - continued</b>							
ES1405121-003	VO_MW12_7.5	EG005T: Chromium	7440-47-3	50 mg/kg	108	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	109	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	113	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	120	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	123	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339095)</b>							
ES1405120-006	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3340058)</b>							
ES1405121-003	VO_MW12_7.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3334824)</b>							
ES1405121-002	VP_MW01_7.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	74.8	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	74.0	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3334824)</b>							
ES1405121-002	VP_MW01_7.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.2	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333652)</b>							
ES1405120-005	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.1	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	32.8	20	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335091)</b>							
ES1405121-024	VN_SB04_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	81.3	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	83.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	61.3	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333652)</b>							
ES1405120-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	101	70	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335091)</b>							
ES1405121-024	VN_SB04_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.2	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333651)</b>							
ES1405120-005	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	85.3	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.1	53	131





Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333651) - continued</b>								
ES1405120-005	Anonymous	EP071: C29 - C36 Fraction	----	2860 mg/kg	85.0	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333776)</b>								
ES1405120-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.2	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333984)</b>								
ES1405127-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.3	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3334823)</b>								
ES1405121-002	VP_MW01_7.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335090)</b>								
ES1405121-024	VN_SB04_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	84.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.8	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.0	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333651)</b>								
ES1405120-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	116	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	99.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.9	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333776)</b>								
ES1405120-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.5	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333984)</b>								
ES1405127-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3334823)</b>								
ES1405121-002	VP_MW01_7.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335090)</b>								
ES1405121-024	VN_SB04_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	52	132	
<b>EP080: BTEXN (QCLot: 3333776)</b>								
ES1405120-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.1	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.7	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	79.8	70	130			
<b>EP080: BTEXN (QCLot: 3333984)</b>								
ES1405127-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3333984) - continued</b>								
ES1405127-001	Anonymous	EP080: Toluene	108-88-3	2.5 mg/kg	80.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.4	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	85.1	70	130		
<b>EP080: BTEXN (QCLot: 3334823)</b>								
ES1405121-002	VP_MW01_7.5	EP080: Benzene	71-43-2	2.5 mg/kg	81.1	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.0	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	91.4	70	130		

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3335348)</b>							
ES1404976-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	105	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	100	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	102	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	101	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	99.2	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	102	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	102	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.2	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333600)</b>							
ES1405063-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	82.3	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336941)</b>							
ES1405121-005	R01_070314_GP	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	71.3	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	91.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336941)</b>							
ES1405121-005	R01_070314_GP	EP074: Chlorobenzene	108-90-7	25 µg/L	99.8	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333891)</b>								
ES1405070-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	32.6	20	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	87.8	60	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	80.0	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	78.9	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	92.8	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333891)</b>								
ES1405070-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	83.6	70	130	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	88.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333890)</b>								
ES1405070-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	117	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	98.8	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	95.0	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336942)</b>								
ES1405121-005	R01_070314_GP	EP080: C6 - C9 Fraction	----	325 µg/L	82.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339701)</b>								
ES1405118-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333890)</b>								
ES1405070-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	101	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	97.8	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336942)</b>								
ES1405121-005	R01_070314_GP	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	84.1	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339701)</b>								
ES1405118-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	70	130	
<b>EP080: BTEXN (QCLot: 3336942)</b>								
ES1405121-005	R01_070314_GP	EP080: Benzene	71-43-2	25 µg/L	70.1	70	130	
		EP080: Toluene	108-88-3	25 µg/L	82.0	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	83.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	83.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.0	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	81.0	70	130		
<b>EP080: BTEXN (QCLot: 3339701)</b>								
ES1405118-001	Anonymous							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3339701) - continued</b>							
ES1405118-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	70	130
		EP080: Toluene	108-88-3	25 µg/L	# Not Determined	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	# Not Determined	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	# Not Determined	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	# Not Determined	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333651)</b>										
ES1405120-005	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	85.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.1	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.0	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333651)</b>										
ES1405120-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	116	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	99.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.9	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333652)</b>										
ES1405120-005	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.3	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.1	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	32.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333652)</b>										
ES1405120-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	101	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333776)</b>										
ES1405120-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.2	----	70	130	----	----



Sub-Matrix: SOIL

Laboratory sample ID					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
						MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333776)</b>												
ES1405120-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.5	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3333776)</b>												
ES1405120-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.7	----	70	130	----	----		
		EP080: Toluene	108-88-3	2.5 mg/kg	89.1	----	70	130	----	----		
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.9	----	70	130	----	----		
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.4	----	70	130	----	----		
			106-42-3									
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.7	----	70	130	----	----		
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.8	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333984)</b>												
ES1405127-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.3	----	70	130	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333984)</b>												
ES1405127-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.7	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3333984)</b>												
ES1405127-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	----	70	130	----	----		
		EP080: Toluene	108-88-3	2.5 mg/kg	80.6	----	70	130	----	----		
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.9	----	70	130	----	----		
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.0	----	70	130	----	----		
			106-42-3									
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.4	----	70	130	----	----		
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.1	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3334823)</b>												
ES1405121-002	VP_MW01_7.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.0	----	70	130	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3334823)</b>												
ES1405121-002	VP_MW01_7.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.2	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3334823)</b>												
ES1405121-002	VP_MW01_7.5	EP080: Benzene	71-43-2	2.5 mg/kg	81.1	----	70	130	----	----		
		EP080: Toluene	108-88-3	2.5 mg/kg	84.5	----	70	130	----	----		
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.6	----	70	130	----	----		
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.4	----	70	130	----	----		
			106-42-3									
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.0	----	70	130	----	----		
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.4	----	70	130	----	----		
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3334824)</b>												
ES1405121-002	VP_MW01_7.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	74.8	----	70	130	----	----		
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	74.0	----	70	130	----	----		
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3334824)</b>												
ES1405121-002	VP_MW01_7.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.2	----	70	130	----	----		



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335090)</b>										
ES1405121-024	VN_SB04_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	84.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.8	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.0	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335090)</b>										
ES1405121-024	VN_SB04_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335091)</b>										
ES1405121-024	VN_SB04_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.8	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	81.3	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	83.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	61.3	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335091)</b>										
ES1405121-024	VN_SB04_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.9	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.2	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3339094)</b>										
ES1405120-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	107	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	103	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	118	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339095)</b>										
ES1405120-006	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3340057)</b>										
ES1405121-003	VO_MW12_7.5	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	109	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	113	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	120	----	70	130	----	----
EG005T: Zinc	7440-66-6	125 mg/kg	123	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3340058)</b>										
ES1405121-003	VO_MW12_7.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3333600)</b>										
ES1405063-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	82.3	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3333890)</b>										
ES1405070-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	117	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	98.8	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	95.0	----	67	153	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3333890)</b>										
ES1405070-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	101	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	97.8	----	67	153	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3333891)</b>										
ES1405070-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	32.6	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	87.8	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	80.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	78.9	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	92.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3333891)</b>										
ES1405070-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	83.6	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	88.4	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3335348)</b>										
ES1404976-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	105	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	100	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	102	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	101	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	99.2	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	102	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	102	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.2	----	70	130	----	----
		<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336941)</b>								
ES1405121-005	R01_070314_GP	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	71.3	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	91.3	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336941)</b>										
ES1405121-005	R01_070314_GP	EP074: Chlorobenzene	108-90-7	25 µg/L	99.8	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: C6 - C9 Fraction	----	325 µg/L	82.0	----	70	130	----	----





Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	84.1	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3336942)</b>										
ES1405121-005	R01_070314_GP	EP080: Benzene	71-43-2	25 µg/L	70.1	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	82.0	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	83.4	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	83.0	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.0	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	81.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3339701)</b>										
ES1405118-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	# Not Determined	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405121</b>	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-MAR-2014
C-O-C number	: ----	Issue Date	: 18-MAR-2014
Sampler	: GP	No. of samples received	: 28
Order number	: 0237747	No. of samples analysed	: 26
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
<b>Soil Glass Jar - Unpreserved (EA002)</b> VO_MW13_1.0	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	12-MAR-2014	12-MAR-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VP_MW01_7.5, VO_MW12_7.5, VO_SB01_3.0, VO_MW13_3.7, D01_070314_GP, VN_SB05_0.5, VN_MW06_0.2, VN_MW07_0.5, VN_MW08_0.2, VN_MW08_5.0, D01_070314_SB, VO_MW13_0.5, D01_070314_RP, VN_MW09_0.5, VN_SB04_0.5, VN_MW12_0.2, VN_MW05_0.5, VN_SB02_0.2	07-MAR-2014	----	----	----	11-MAR-2014	21-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VP_MW01_4.0, VO_MW13_0.2	07-MAR-2014	---	03-SEP-2014	----	18-MAR-2014	14-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_MW01_7.5	07-MAR-2014	14-MAR-2014	03-SEP-2014	✓	14-MAR-2014	03-SEP-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW12_7.5, VO_SB01_3.0, VO_MW13_3.7, D01_070314_GP, VN_SB05_0.5, VN_MW06_0.2, VN_MW07_0.5, VN_MW08_0.2, VN_MW08_5.0, D01_070314_SB, VO_MW13_0.5, D01_070314_RP, VN_MW09_0.5, VN_SB04_0.5, VN_MW12_0.2, VN_MW05_0.5, VN_SB02_0.2	07-MAR-2014	14-MAR-2014	03-SEP-2014	✓	17-MAR-2014	03-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_MW01_7.5	07-MAR-2014	14-MAR-2014	04-APR-2014	✓	17-MAR-2014	04-APR-2014	✓	
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VO_MW12_7.5, VO_MW13_3.7, VN_SB05_0.5, VN_MW07_0.5, VN_MW08_5.0, VO_MW13_0.5, VN_MW09_0.5, VN_MW12_0.2, VN_SB02_0.2	VO_SB01_3.0, D01_070314_GP, VN_MW06_0.2, VN_MW08_0.2, D01_070314_SB, D01_070314_RP, VN_SB04_0.5, VN_MW05_0.5,	07-MAR-2014	14-MAR-2014	04-APR-2014	✓	18-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP, VN_MW06_0.2, VN_MW08_0.2, D01_070314_SB, D01_070314_RP,	VO_MW12_7.5, VO_MW13_3.7, VN_SB05_0.5, VN_MW07_0.5, VN_MW08_5.0, VO_MW13_0.5, VN_MW09_0.5	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	12-MAR-2014	21-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> VN_SB04_0.5, VN_MW05_0.5,	VN_MW12_0.2, VN_SB02_0.2	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP	VO_MW12_7.5, VO_MW13_3.7,	07-MAR-2014	12-MAR-2014	14-MAR-2014	✓	13-MAR-2014	14-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_MW01_7.5, VO_SB01_3.0, D01_070314_GP, VN_MW06_0.2, VN_MW08_0.2, D01_070314_SB, D01_070314_RP,	VO_MW12_7.5, VO_MW13_3.7, VN_SB05_0.5, VN_MW07_0.5, VN_MW08_5.0, VO_MW13_0.5, VN_MW09_0.5	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	12-MAR-2014	21-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VN_SB04_0.5, VN_MW05_0.5,	VN_MW12_0.2, VN_SB02_0.2	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_MW01_7.5, VO_MW12_7.5, VO_SB01_3.0, VO_MW13_3.7, D01_070314_GP, VN_SB05_0.5, VN_MW06_0.2, VN_MW07_0.5, VN_MW08_0.2, VN_MW08_5.0, D01_070314_SB, VO_MW13_0.5, D01_070314_RP, VN_MW09_0.5	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	12-MAR-2014	21-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VN_SB04_0.5, VN_MW12_0.2, VN_MW05_0.5, VN_SB02_0.2	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_MW05_0.5, VN_SB02_0.2	07-MAR-2014	11-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP SPIKE 18, TRIP BLANK 18, TSC 18, VN_SB05_0.5, VN_MW06_0.2, VN_MW07_0.5, VN_MW08_0.2, VN_MW08_5.0, D01_070314_SB, VO_MW13_0.5, D01_070314_RP, VN_MW09_0.5, VN_SB04_0.5, VN_MW12_0.2	07-MAR-2014	11-MAR-2014	21-MAR-2014	✓	14-MAR-2014	21-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_MW01_7.5, VO_MW12_7.5, VO_SB01_3.0, VO_MW13_3.7, D01_070314_GP	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_MW05_0.5, VN_SB02_0.2	07-MAR-2014	11-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP BLANK 18, VN_SB05_0.5, VN_MW06_0.2, VN_MW07_0.5, VN_MW08_0.2, VN_MW08_5.0, D01_070314_SB, VO_MW13_0.5, D01_070314_RP, VN_MW09_0.5, VN_SB04_0.5, VN_MW12_0.2	07-MAR-2014	11-MAR-2014	21-MAR-2014	✓	14-MAR-2014	21-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_MW01_7.5, VO_MW12_7.5, VO_SB01_3.0, VO_MW13_3.7, D01_070314_GP	07-MAR-2014	12-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_070314_GP, R01_070314_SB	07-MAR-2014	12-MAR-2014	03-SEP-2014	✓	13-MAR-2014	03-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_070314_GP, R01_070314_SB	07-MAR-2014	----	----	----	11-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_070314_GP, R01_070314_SB	07-MAR-2014	14-MAR-2014	14-MAR-2014	✓	14-MAR-2014	23-APR-2014	✓
<b>EP074D: Fumigants</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_070314_GP, R01_070314_SB	07-MAR-2014	14-MAR-2014	14-MAR-2014	✓	14-MAR-2014	23-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_070314_GP, R01_070314_SB	07-MAR-2014	14-MAR-2014	14-MAR-2014	✓	14-MAR-2014	23-APR-2014	✓





Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_070314_SB	07-MAR-2014	14-MAR-2014	21-MAR-2014	✓	14-MAR-2014	21-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_070314_GP	07-MAR-2014	13-MAR-2014	21-MAR-2014	✓	13-MAR-2014	21-MAR-2014	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_070314_SB	07-MAR-2014	14-MAR-2014	21-MAR-2014	✓	14-MAR-2014	21-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	33	9.1	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	32	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	26	11.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	38	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	37	10.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	6	51	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	37	5.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	51	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	37	5.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	51	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	32	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	37	5.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	51	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP) - Continued</b>							
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	35	11.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	35	5.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074F: Halogenated Aromatic Compounds	3986180-002	----	Chlorobenzene	108-90-7	118 %	80-118%	Recovery greater than upper control limit
<b>Matrix Spike (MS) Recoveries</b>							
EP080/071: Total Petroleum Hydrocarbons	ES1405118-001	Anonymous	C6 - C9 Fraction	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1405118-001	Anonymous	C6 - C10 Fraction	C6_C10	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	Benzene	71-43-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	Toluene	108-88-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	Ethylbenzene	100-41-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	ortho-Xylene	95-47-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1405118-001	Anonymous	Naphthalene	91-20-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance



This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

### ***Outliers : Frequency of Quality Control Samples***

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method					
Laboratory Duplicates (DUP)					
Moisture Content	3	33	9.1	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report****Work Order : ES1405121**Client : **ENVIRO RESOURCES  
MANAGEMENT**

Laboratory : Environmental Division Sydney

Contact : JOHN EWING  
Address : GROUND FLOOR  
33 SAUNDERS STREET, PYRMONT  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007Contact : Barbara Hanna  
Address : 277-289 Woodpark Road Smithfield  
NSW Australia 2164E-mail : john.ewing@erm.com  
Telephone : +61 02 8584 8888  
Facsimile : +61 02 8584 8800E-mail : Barbara.Hanna@alsglobal.com  
Telephone : +61 2 8784 8555  
Facsimile : +61 2 8784 8555Project : VALES POINT POWER STATION  
Order number : 0237747  
C-O-C number : ----  
Site : ----  
Sampler : GP

Page : 1 of 3

Quote number : ES2014ENVRES0385 (SY/050/14 V3)

QC Level : NEPM 2013 Schedule B(3) and ALS  
QCS3 requirement**Dates**Date Samples Received : 10-MAR-2014  
Client Requested Due Date : 18-MAR-2014Issue Date : 11-MAR-2014 13:56  
Scheduled Reporting Date : **18-MAR-2014****Delivery Details**Mode of Delivery : Carrier  
No. of coolers/boxes : 1 HARD  
Security Seal : Intact.Temperature : 3.2' C - Ice present  
No. of samples received : 28  
No. of samples analysed : 26**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01\_070314\_SB will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/NPAH/Phenols/8Metals
ES1405121-002	07-MAR-2014 10:15	VP_MW01_7.5	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEX/NPAH/Phenols	WATER - W-27T TRH/BTEX/NPAH/Phenols/Total 8 Metals
ES1405121-005	07-MAR-2014 14:15	R01_070314_GP	✓			✓
ES1405121-017	07-MAR-2014 15:00	R01_070314_SB		✓	✓	

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email [au.accounts@erm.com](mailto:au.accounts@erm.com)



### CHAIN OF CUSTODY

ALS Laboratory  
please tick →

LANCE LAKE 21, Burnside Rd, Burnside, SA 5061  
Ph: 08 833 48996 F: 08 833 48997  
CHRISTMAS ISLAND 32, 3200 Christchurch St, Christchurch, NZ 01402  
Ph: 07 324 7222 F: 07 324 7223  
LIDCO ADULTERATION 405, Cheltenham Drive, Toron QLD 4050  
Ph: 07 3171 9000 F: 07 3171 9001

LONGVIEW 75, Highbury Road, Mackay QLD 4740  
Ph: 07 3044 1177 F: 07 3044 1178  
DUMBOURNE 24, Walsall Road, Sydney, NSW 1517  
Ph: 03 9545 2935 F: 03 9545 2936  
CHERRYBROOK 10, 104, Saxe-Waldrop, Wollongong, NSW 2522  
Ph: 02 4227 6292 F: 02 4227 6293

UNIONCASTLE 3, 306, South Road, Warragul, NSW 2594  
Ph: 07 4094 2333 F: 07 4094 2334  
DUNEDIN 40, 15, Dunedin City Centre, Dunedin, NZ 9016  
Ph: 07 4706 0605 F: 07 4706 0606  
DUNEDIN 10, 104, Saxe-Waldrop, Wollongong, NSW 2522  
Ph: 02 4227 6292 F: 02 4227 6293

USIDNEY 27, 289, Woodburn Road, Southfield, NSW 2164  
Ph: 02 934 48996 F: 02 934 48997  
DUNEDIN 40, 15, Dunedin City Centre, Dunedin, NZ 9016  
Ph: 07 4706 0605 F: 07 4706 0606  
DUNEDIN 10, 104, Saxe-Waldrop, Wollongong, NSW 2522  
Ph: 02 4227 6292 F: 02 4227 6293

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** *John Ewing*  
**COC emailed to ALS?** ( YES )  
Email reports to (will default to PM if no other addresses are listed): *symphony.dellacost@erm.com*  
Email invoice to (will default to PM if no other addresses are listed): *symphony.dellacost@erm.com*

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date):  
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) **SY-050-14**

**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 653752  
**EDD FORMAT (or default):**

**FOR LABORATORY USE ONLY (Circle)**  
Catalogue Seal Intact?  Yes  No  
Free ice / Frozen ice bricks present upon receipt?  Yes  No  
Random Sample Temperature on Receipt: **32.5** °C  
Other comment:

**RECEIVED BY:** *See ALS*  
**DATE/TIME:** 10/3/14 18:55

**RELINQUISHED BY:** *See ALS*  
**DATE/TIME:** 10/3/14 18:55

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information	
						8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH
1	VP_MW01_40	7/3/14 0945	S	8	1	X	X	X	X	X	X	X	X	X	X	X	Subcontracted to ALS Lab / Analytical Suite: <i>ENV/IC/010</i> Original sent By / Date: <i>IC/01-0703/14-58</i> Relinquished By / Date: <i>See ALS</i> Cannote / Counter: <i>See ALS</i> WO No: <i>ES/1405121</i> Attach by PO / Internal Sheet: <i>See ALS</i>
2	VP_MW01_75	7/3/14 1015	S	Jar	1	X	X	X	X	X	X	X	X	X	X	X	
3	VP_MW12_15	7/3/14 1345	S	Jar	1	X	X	X	X	X	X	X	X	X	X	X	
4	VO_S001_30	7/3/14 1200	S	Jar	1	X	X	X	X	X	X	X	X	X	X	X	
5	001_070314-01	7/3/14 1415	W	N, AG, Vx2	4	X	X	X	X	X	X	X	X	X	X	X	
6	VO_MN13_37	7/3/14 1510	S	Jar	1	X	X	X	X	X	X	X	X	X	X	X	
7	001_070314-01	7/3/14	S	Jar	1	X	X	X	X	X	X	X	X	X	X	X	
8	TRIP SLIKE 18		S														BTEX
9	TRIP BLANK 18		S														BTEX + TEM
10	TSC 18		S														

Environmental Division  
Sydney  
Work Order  
**ES1405121**



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405226</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : DB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 11-MAR-2014 <b>Issue Date</b> : 19-MAR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 5
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB01_0.5	VN_SB03_0.5	VN_MW01_0.2	VN_MW02_0.5	D01_100314_DB
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405226-001	ES1405226-002	ES1405226-003	ES1405226-004	ES1405226-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	19.1	17.4	10.0	17.0	17.8
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	<10	20	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	26	18	12	20	19
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	8	8	7	7	8
Manganese	7439-96-5	5	mg/kg	<5	<5	<5	<5	<5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	65	49	41	51	46
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB01_0.5	VN_SB03_0.5	VN_MW01_0.2	VN_MW02_0.5	D01_100314_DB
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405226-001	ES1405226-002	ES1405226-003	ES1405226-004	ES1405226-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB01_0.5	VN_SB03_0.5	VN_MW01_0.2	VN_MW02_0.5	D01_100314_DB
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405226-001	ES1405226-002	ES1405226-003	ES1405226-004	ES1405226-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	78.0	78.8	74.7	70.0	84.3
2-Chlorophenol-D4	93951-73-6	0.1	%	87.3	86.1	85.1	83.2	82.4
2,4,6-Tribromophenol	118-79-6	0.1	%	94.3	96.4	89.5	84.2	83.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.8	90.0	88.0	86.1	86.5
Anthracene-d10	1719-06-8	0.1	%	89.5	91.2	86.3	83.6	84.2
4-Terphenyl-d14	1718-51-0	0.1	%	96.0	96.4	90.8	88.2	88.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.9	95.7	84.6	82.5	85.8
Toluene-D8	2037-26-5	0.1	%	93.0	98.7	90.7	84.4	90.1
4-Bromofluorobenzene	460-00-4	0.1	%	92.2	97.8	86.5	81.9	86.8



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405226</b>	<b>Page</b>	: 1 of 11
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	<b>: GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 11-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 19-MAR-2014
<b>Sampler</b>	: DB	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 5
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Pabi Subba

#### Position

Senior Spectroscopist  
Senior Organic Chemist

#### Accreditation Category

Sydney Inorganics  
Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC





### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3335667)</b>									
ES1405226-002	VN_SB03_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.4	19.3	10.8	0% - 50%
ES1405227-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	15.1	0.0	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3341733)</b>									
ES1405222-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	80	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	9	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	9	36.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	18	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	49	49	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	56	53	5.8	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	13	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	98	85	14.6	0% - 50%
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1405224-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	28	11.8	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	21	31	40.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341734)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341734) - continued</b>									
ES1405222-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405224-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335633)</b>									
ES1405224-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405226-001	VN_SB01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335633)</b>									
ES1405224-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335633) - continued</b>									
ES1405224-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405226-001	VN_SB01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405227-018	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335632)</b>									
ES1405224-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405226-001	VN_SB01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405227-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335632)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335632) - continued</b>									
ES1405224-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405226-001	VN_SB01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-018	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3341733)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	98.7	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	104	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	108	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	108	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	110	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	96.0	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	113	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	104	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	102	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341734)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	76.7	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335633)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	86.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	79.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	86.4	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.3	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	75.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	72.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	78.2	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	12.9	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335633)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	83.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	86.2	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335633) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	84.3	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	85.5	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	85.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	85.1	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	87.7	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	87.9	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	81.8	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	84.4	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	84.1	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	95.1	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	77.1	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	81.6	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	81.7	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	84.6	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.2	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335632)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	107	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.6	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335632)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	82.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.6	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	108	63	131	
<b>EP080: BTEXN (QCLot: 3335125)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.9	62	138	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3341733)</b>							
ES1405222-004	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	113	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	109	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	98.0	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341734)</b>							
ES1405222-004	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.5	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335633)</b>							
ES1405224-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	86.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	71.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	54.8	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335633)</b>							
ES1405224-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.4	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>							
ES1405227-018	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335632)</b>							
ES1405224-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	85.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.2	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.6	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>							
ES1405227-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335632)</b>							
ES1405224-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	52	132
<b>EP080: BTEXN (QCLot: 3335125)</b>							
ES1405227-018	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	70	130





Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3335125) - continued</b>							
ES1405227-018	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.4	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>											
ES1405227-018	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>											
ES1405227-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3335125)</b>											
ES1405227-018	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335632)</b>											
ES1405224-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	85.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	85.2	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	71.6	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335632)</b>											
ES1405224-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	104	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.3	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	58.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335633)</b>											
ES1405224-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	86.8	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.8	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	71.6	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	54.8	----	20	130	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335633)</b>										
ES1405224-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.9	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.4	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3341733)</b>										
ES1405222-004	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	113	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	109	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	105	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	107	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	98.0	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341734)</b>										
ES1405222-004	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.5	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405226</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 11-MAR-2014
C-O-C number	: ----	Issue Date	: 19-MAR-2014
Sampler	: DB	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 5
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	----	----	----	12-MAR-2014	24-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	17-MAR-2014	06-SEP-2014	✓	17-MAR-2014	06-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	17-MAR-2014	07-APR-2014	✓	18-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP071) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_SB01_0.5, VN_MW01_0.2, D01_100314_DB	VN_SB03_0.5, VN_MW02_0.5,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405226</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2013ENVRES0354 (EN/009/13)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: DB</b>		

#### Dates

Date Samples Received	: 11-MAR-2014	Issue Date	: 14-MAR-2014 09:13
Client Requested Due Date	: 19-MAR-2014	Scheduled Reporting Date	: <b>19-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.8°C - Ice present
No. of coolers/boxes	: 2 HARDS	No. of samples received	: 5
Security Seal	: Intact.	No. of samples analysed	: 5

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols
ES1405226-001	10-MAR-2014 15:00	VN_SB01_0.5	✓	✓	✓
ES1405226-002	10-MAR-2014 15:00	VN_SB03_0.5	✓	✓	✓
ES1405226-003	10-MAR-2014 15:00	VN_MW01_0.2	✓	✓	✓
ES1405226-004	10-MAR-2014 15:00	VN_MW02_0.5	✓	✓	✓
ES1405226-005	10-MAR-2014 15:00	D01_100314_DB	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405227</b>	Page	: 1 of 35
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 11-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: GP	No. of samples received	: 28
Site	: ----	No. of samples analysed	: 27
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG020:** Positive results for samples ES1405227-8,27 have been confirmed by reanalysis.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	54	----	----	----
+150µm	----	1	%	----	42	----	----	----
+300µm	----	1	%	----	36	----	----	----
+425µm	----	1	%	----	26	----	----	----
+600µm	----	1	%	----	20	----	----	----
+1180µm	----	1	%	----	16	----	----	----
+2.36mm	----	1	%	----	12	----	----	----
+4.75mm	----	1	%	----	8	----	----	----
+9.5mm	----	1	%	----	4	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	7.8	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.7	----	10.3	16.2	11.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	46	----	----	----
Sand (>75 µm)	----	1	%	----	41	----	----	----
Gravel (>2mm)	----	1	%	----	12	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	14.3	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.3	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.7	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	16.4	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	----	5	7	8
Copper	7440-50-8	5	mg/kg	7	----	12	<5	8
Lead	7439-92-1	5	mg/kg	<5	----	9	<5	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Nickel	7440-02-0	2	mg/kg	2	----	2	<2	4
Zinc	7440-66-6	5	mg/kg	12	----	65	10	18
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.05	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	<5	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
				ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>100</b>	----	<b>99.5</b>	<b>96.2</b>	<b>93.5</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074S: VOC Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	91.8	----	81.2	82.5	84.6
4-Bromofluorobenzene	460-00-4	0.1	%	86.2	----	77.8	80.7	81.5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	78.3	----	87.4	78.7	82.2
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	----	88.5	85.7	90.1
2,4,6-Tribromophenol	118-79-6	0.1	%	86.5	----	92.8	86.7	91.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.9	----	91.6	88.3	94.6
Anthracene-d10	1719-06-8	0.1	%	91.0	----	89.5	87.0	92.8
4-Terphenyl-d14	1718-51-0	0.1	%	95.2	----	94.0	91.2	97.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	----	100	96.7	94.2
Toluene-D8	2037-26-5	0.1	%	86.9	----	77.1	75.9	75.5
4-Bromofluorobenzene	460-00-4	0.1	%	93.1	----	83.1	80.8	82.3



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.9	7.9	11.6	----	15.1
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	----
Asbestos Type	1332-21-4	-	--	----	----	-	-	----
Sample weight (dry)	----	0.01	g	----	----	740	652	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.740	0.652	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	11	22	5	----	16
Copper	7440-50-8	5	mg/kg	6	39	<5	----	6
Lead	7439-92-1	5	mg/kg	6	52	<5	----	6
Nickel	7440-02-0	2	mg/kg	<2	19	2	----	<2
Zinc	7440-66-6	5	mg/kg	<5	458	18	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	----	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	----	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	----	<5
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	0.0176	----	<0.0005
PFOA	335-67-1	0.0005	mg/kg	----	----	0.0007	----	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	<0.005
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	110	----	85.0
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.6	92.9	99.3	----	99.2
Toluene-D8	2037-26-5	0.1	%	90.9	82.4	88.4	----	95.0
4-Bromofluorobenzene	460-00-4	0.1	%	79.3	79.4	80.8	----	85.3
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.5	80.5	79.0	----	102
2-Chlorophenol-D4	93951-73-6	0.1	%	93.4	84.5	86.5	----	110
2,4,6-Tribromophenol	118-79-6	0.1	%	99.1	89.6	87.8	----	112



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	101	88.8	89.1	----	114
Anthracene-d10	1719-06-8	0.1	%	99.8	89.3	86.3	----	112
4-Terphenyl-d14	1718-51-0	0.1	%	105	94.3	91.5	----	119
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.0	93.5	100	----	99.7
Toluene-D8	2037-26-5	0.1	%	86.0	75.7	83.9	----	89.9
4-Bromofluorobenzene	460-00-4	0.1	%	85.4	79.3	86.2	----	90.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
				ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	70	----	----	----
+150µm	----	1	%	----	66	----	----	----
+300µm	----	1	%	----	55	----	----	----
+425µm	----	1	%	----	46	----	----	----
+600µm	----	1	%	----	37	----	----	----
+1180µm	----	1	%	----	27	----	----	----
+2.36mm	----	1	%	----	19	----	----	----
+4.75mm	----	1	%	----	11	----	----	----
+9.5mm	----	1	%	----	4	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	3.9	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	19.2	17.0	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	30	----	----	----
Sand (>75 µm)	----	1	%	----	51	----	----	----
Gravel (>2mm)	----	1	%	----	19	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	794	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.794	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.8	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	0.5	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.2	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.5	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	3	5	----	----
Copper	7440-50-8	5	mg/kg	----	<5	6	----	----
Lead	7439-92-1	5	mg/kg	----	5	6	----	----
Nickel	7440-02-0	2	mg/kg	----	<2	2	----	----
Zinc	7440-66-6	5	mg/kg	----	<5	9	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.04	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP074B: Oxygenated Compounds - Continued</b>								
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	0.8	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	16.1	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	2.0	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	9.2	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	3.9	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	13.1	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	32.0	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	86.0	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	100	97.6	----	----
Toluene-D8	2037-26-5	0.1	%	----	96.3	91.2	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	88.4	80.7	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	77.9	77.2	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	82.3	83.7	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	83.1	80.2	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	87.2	87.2	----	----
Anthracene-d10	1719-06-8	0.1	%	----	86.2	84.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	92.2	89.1	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	101	98.1	106	112
Toluene-D8	2037-26-5	0.1	%	----	91.3	86.4	92.8	97.5
4-Bromofluorobenzene	460-00-4	0.1	%	----	93.6	86.4	93.8	96.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	13.2	10.7	17.6	10.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	280	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.280	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	----	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	<10	<10	<10	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	4	3	2	7
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	----	<5	6	<5	<5
Manganese	7439-96-5	5	mg/kg	----	26	6	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	14	17	6	----
Zinc	7440-66-6	5	mg/kg	----	8	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<b>0.8</b>	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<b>17.6</b>	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<b>2.2</b>	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<b>10.0</b>	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<b>4.3</b>	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<b>14.3</b>	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<b>34.9</b>	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>74.3</b>	<b>82.8</b>	<b>75.1</b>	<b>77.7</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	----	<b>83.7</b>	<b>85.6</b>	<b>80.1</b>	<b>83.3</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	----	<b>79.0</b>	<b>94.0</b>	<b>80.7</b>	<b>81.6</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	<b>85.4</b>	<b>89.2</b>	<b>84.1</b>	<b>86.2</b>
Anthracene-d10	1719-06-8	0.1	%	----	<b>83.0</b>	<b>86.4</b>	<b>81.4</b>	<b>83.0</b>
4-Terphenyl-d14	1718-51-0	0.1	%	----	<b>87.8</b>	<b>90.1</b>	<b>86.2</b>	<b>88.0</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>109</b>	<b>96.8</b>	<b>90.8</b>	<b>108</b>	<b>106</b>
Toluene-D8	2037-26-5	0.1	%	<b>94.7</b>	<b>98.1</b>	<b>96.6</b>	<b>96.2</b>	<b>98.4</b>



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	95.7	95.7	97.1	98.2

Client sampling date / time



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
Client sampling date / time	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----
	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----

Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.4	10.2	20.6	14.6	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	20	20	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	6	<2	4	7	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	21	<5	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	76.2	77.4	78.4	77.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	82.5	84.0	81.4	83.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	78.8	79.3	81.5	81.2	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	86.1	85.3	85.8	87.7	----
Anthracene-d10	1719-06-8	0.1	%	83.2	81.5	83.5	84.6	----
4-Terphenyl-d14	1718-51-0	0.1	%	88.5	87.3	88.6	89.1	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.7	97.7	100	114	----
Toluene-D8	2037-26-5	0.1	%	100	88.5	88.4	85.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	88.0	88.2	91.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_100314_GP	R01_100314_CM	R01_100314_SB	---	---
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	---	---
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Beryllium	7440-41-7	0.001	mg/L	---	---	<0.001	---	---
Barium	7440-39-3	0.001	mg/L	---	---	<b>0.005</b>	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Cobalt	7440-48-4	0.001	mg/L	---	---	<0.001	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Manganese	7439-96-5	0.001	mg/L	---	---	<0.001	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Selenium	7782-49-2	0.01	mg/L	---	---	<0.01	---	---
Vanadium	7440-62-2	0.01	mg/L	---	---	<0.01	---	---
Zinc	7440-66-6	0.005	mg/L	<b>0.062</b>	<0.005	<b>0.009</b>	---	---
Boron	7440-42-8	0.05	mg/L	---	---	<0.05	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	---	---
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	---	---
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	---	---
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1.1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1.1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1.2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	----	----
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	----	----
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	----	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	---	---
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	---	---
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
^ Sum of polycyclic aromatic hydrocarbons	---	0.5	µg/L	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	---	0.5	µg/L	<0.5	<0.5	<0.5	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	<20	<20	---	---
C10 - C14 Fraction	---	50	µg/L	<50	<50	<50	---	---
C15 - C28 Fraction	---	100	µg/L	<100	<100	<100	---	---
C29 - C36 Fraction	---	50	µg/L	<50	<50	<50	---	---
^ C10 - C36 Fraction (sum)	---	50	µg/L	<50	<50	<50	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	---	---
>C16 - C34 Fraction	---	100	µg/L	<100	<100	<100	---	---
>C34 - C40 Fraction	---	100	µg/L	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	---	100	µg/L	<100	<100	<100	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	100	µg/L	<100	<100	<100	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	---	---
Toluene	108-88-3	2	µg/L	<2	<2	<2	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	----	----
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	----	----
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	----	----
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	122	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	116	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	18.5	21.9	22.0	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	35.2	47.8	48.6	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	47.4	47.0	41.2	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	49.7	51.6	47.9	----	----
Anthracene-d10	1719-06-8	0.1	%	77.9	77.6	75.2	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.5	89.9	67.7	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	104	120	----	----
Toluene-D8	2037-26-5	0.1	%	129	117	133	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	124	113	128	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VA_MW05_0.1 - 10-MAR-2014 14:15	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_SB03_0.1 - 10-MAR-2014 15:00	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_MW04_0.1 - 10-MAR-2014 15:00	Mid orange - brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VO_MW18_0.1 - 10-MAR-2014 15:00	Mid grey - brown clay soil with grey and red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405227</b>	Page	: 1 of 33
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 11-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: GP	No. of samples received	: 28
Order number	: 0237747	No. of samples analysed	: 27
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3339283)</b>									
ES1405194-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.0	8.9	1.2	0% - 20%
ES1405234-008	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.6	6.5	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3335667)</b>									
ES1405226-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.4	19.3	10.8	0% - 50%
ES1405227-011	VA_SB03_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	15.1	0.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3335668)</b>									
ES1405227-025	VN_MW09_4.2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.6	18.4	11.5	0% - 20%
ES1405233-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.3	14.7	3.6	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3337622)</b>									
ES1405225-006	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.5	0.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	0.8	0.7	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345397)</b>									
ES1405225-008	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	21.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	37	33	11.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	9	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405227-006	VF_MW01_1.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345397) - continued</b>									
ES1405227-006	VF_MW01_1.0	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	<5	23.1	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	6	15.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	56	45	23.1	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345399)</b>									
ES1405227-022	D01_100314_CM	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	9	14	42.7	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	20	10.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405382-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	70	43.2	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	20	35.2	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	7	43.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	11	36.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	10	37.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	9	40.8	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	189	222	16.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	32	37.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	13	19	33.2	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3345398)</b>									
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405227-006	VF_MW01_1.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3345400)</b>									
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405382-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3339403)</b>									
EB1405972-001	Anonymous	EP003: Total Organic Carbon	----	0.02	%	33.2	36.8	10.4	0% - 20%
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3335080)</b>									
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405222-011	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3335131)</b>									



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3335131) - continued</b>									
ES1405225-012	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405227-013	VA_MW04_1.0	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3335131) - continued</b>									
ES1405227-013	VA_MW04_1.0	EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3335131) - continued</b>									
ES1405227-013	VA_MW04_1.0	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335611)</b>									
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405227-018	VO_MW06_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335611)</b>									
ES1405227-001	VE_SB01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405227-018	VO_MW06_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335125) - continued</b>									
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335130)</b>									
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335610)</b>									
ES1405227-001	VE_SB01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405227-018	VO_MW06_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335130)</b>									
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335610)</b>									
ES1405227-001	VE_SB01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405227-018	VO_MW06_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3335125)</b>									
ES1405225-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-018	VO_MW06_2.0	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP080: BTEXN (QC Lot: 3335130)</b>											
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405227-013	VA_MW04_1.0	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
ES1405227-013	VA_MW04_1.0	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		<b>EP231: Perfluorinated Compounds (QC Lot: 3336826)</b>									
		EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
				EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
				EP231: 6:2 Fluorotelomer sulfonate (6:2 Fts)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
<b>Sub-Matrix: WATER</b>											
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3344074)</b>											
ES1405228-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0002	58.1	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.007	24.0	No Limit		
ES1405380-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.005	0.005	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3335453)</b>											
EP1401814-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
ES1405224-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3336950)</b>											
ES1405298-005	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3336950) - continued</b>									
ES1405298-005	Anonymous	EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074B: Oxygenated Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1405299-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336950) - continued</b>									
ES1405298-005	Anonymous	EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1405299-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336950) - continued</b>									
ES1405299-001	Anonymous	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074G: Trihalomethanes (QC Lot: 3336950) - continued</b>									
ES1405299-001	Anonymous	EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335235)</b>									
ES1405191-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1405191-004	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335235)</b>									
ES1405191-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335235) - continued</b>									
ES1405191-001	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1405191-004	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335234)</b>									
ES1405191-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1405191-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	80	100	21.8	No Limit
ES1405299-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	120	140	9.2	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335234)</b>									
ES1405191-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1405191-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	2590	3050	16.2	0% - 20%
ES1405299-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	170	160	0.0	No Limit



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	12	12	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	10	11	10.8	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	4	4	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3337622)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.4	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	107	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	96.4	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	112	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	103	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	117	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.0	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	108	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	112	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	115	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.4	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	120	95	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399) - continued</b>									
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.1	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.0	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3339403)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	90.0	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	87.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3335131)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	107	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	108	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	106	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	108	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3335131)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	83.9	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	113	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	117	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	115	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3335131)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	82.0	54	126	
<b>EP074D: Fumigants (QCLot: 3335131)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	90.0	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	108	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	88.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	84.3	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	101	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131) - continued</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	51.7	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	65.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	70.1	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	82.5	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	90.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	85.3	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	94.8	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	88.8	43	129	
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	111	66	132	
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	102	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.1	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	105	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	113	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	116	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	119	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	83.4	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	107	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	108	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	74.5	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.0	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	59.8	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	112	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	116	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	107	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131) - continued</b>									
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	111	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	110	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	64.3	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	68.1	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3335131)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	97.6	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.4	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	87.6	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	84.1	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	80.7	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	81.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	76.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	74.9	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	88.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	79.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	64.2	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	77.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	11.9	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.4	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	82.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	81.1	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	81.7	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	82.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	81.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	83.7	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	84.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	78.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	81.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	87.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	90.4	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	82.4	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	76.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	80.6	71.7	113	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611) - continued</b>								
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	72.4	114
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.2	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.6	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	93.1	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.5	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	83.9	64	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.4	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	71.5	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	85.0	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	92.4	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	104	63	131
<b>EP080: BTEXN (QCLot: 3335125)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.6	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.6	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.9	62	138
<b>EP080: BTEXN (QCLot: 3335130)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	69.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	72.9	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	76.2	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	77.1	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.7	62	138
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	88.9	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	108	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	108	56	138



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.8	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.1	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	109	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.8	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.4	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.1	83	117	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.9	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3336950)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	109	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	107	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	96.6	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.3	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.3	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	102	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	101	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	96.1	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	91.7	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3336950)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	104	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	128	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	138	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	135	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3336950)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	74.3	72.8	127	
<b>EP074D: Fumigants (QCLot: 3336950)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.7	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	98.3	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	100	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	# 119	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	74.2	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	85.1	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	73.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	72.7	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	80.8	65	131	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950) - continued</b>									
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	81.0	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	81.3	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.6	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	92.1	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	85.7	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	99.8	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	80.5	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	103	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	107	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	120	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	121	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	106	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.0	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	112	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	103	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	119	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	113	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	90.4	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	94.3	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	69.9	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	105	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	105	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	95.5	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	98.1	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.7	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	98.1	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	98.4	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	81.4	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	90.2	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3336950)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	89.1	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	89.2	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	90.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	102	73.5	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>									





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235) - continued</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	31.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	62.0	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	81.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	78.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.4	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	74.3	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.4	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	93.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	65.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	34.7	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	84.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	94.4	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	70.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	94.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	84.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	92.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.8	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	94.5	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	75.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	91.9	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.4	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	71.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	81.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	98.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.8	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	104	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	96.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.8	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.2	75	127	
<b>EP080: BTEXN (QCLot: 3336949)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.3	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	112	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.3	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	99.4	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3336949) - continued</b>								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>						
ES1405225-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70 130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.0	70 130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70 130
		EG005T: Copper	7440-50-8	125 mg/kg	101	70 130
		EG005T: Lead	7439-92-1	125 mg/kg	98.4	70 130
		EG005T: Nickel	7440-02-0	50 mg/kg	88.5	70 130
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70 130
		EG005T: Zinc	7440-66-6	125 mg/kg	90.7	70 130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>						
ES1405227-022	D01_100314_CM	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70 130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70 130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70 130
		EG005T: Copper	7440-50-8	125 mg/kg	98.9	70 130
		EG005T: Lead	7439-92-1	125 mg/kg	109	70 130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	70 130
		EG005T: Selenium	7782-49-2	50 mg/kg	108	70 130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70 130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>						
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70 130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>						
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	5 mg/kg	94.2	70 130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>						
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	70 130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>						
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.0	70 130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	77.5	70 130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>						



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131) - continued</b>								
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.6	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>								
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.5	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	77.0	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.8	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.9	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	33.2	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>								
ES1405227-001	VE_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	117	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>								
ES1405227-001	VE_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	77.7	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	67.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	65.3	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>								
ES1405227-001	VE_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	63.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	52	132	
<b>EP080: BTEXN (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	70	130		
<b>EP080: BTEXN (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130	



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3335130) - continued</b>								
ES1405225-012	Anonymous	EP080: Toluene	108-88-3	2.5 mg/kg	74.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.8	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	75.3	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>								
EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	109	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	106	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	109	56	138	

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>							
ES1405227-008	R01_100314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.1	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.7	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	107	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>							
ES1405138-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.1	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>							
ES1405298-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.7	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	84.4	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>							
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	87.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>							
ES1405191-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	33.4	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.3	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	78.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	69.8	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>							
ES1405191-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	73.2	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	78.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>								
ES1405191-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	93.9	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	99.8	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>								
ES1405191-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	84.4	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	101	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	70	130	
<b>EP080: BTEXN (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	114	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	123	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	70	130	
	91-20-3	25 µg/L	102	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>											
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>											
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>											
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3335125)</b>											
ES1405227-018	VO_MW06_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	----	70	130	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3335125) - continued</b>										
ES1405227-018	VO_MW06_2.0	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	77.4	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>										
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	117	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>										
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.2	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3335130)</b>										
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	74.5	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.9	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	75.2	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.8	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.3	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>										
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.0	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	77.5	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>										
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.6	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>										
ES1405227-001	VE_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	77.7	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	67.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	65.3	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>										
ES1405227-001	VE_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.5	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	63.8	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>										
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.5	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	77.0	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.8	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.9	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	33.2	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>										
ES1405227-001	VE_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.7	----	70	130	----	----





Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611) - continued</b>										
ES1405227-001	VE_SB01_0.5	EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.4	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>										
EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	109	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	106	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	109	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>										
ES1405225-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.0	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	101	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	101	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	98.4	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	88.5	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	90.7	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>										
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>										
ES1405227-022	D01_100314_CM	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	98.9	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	109	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	108	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>										
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	5 mg/kg	94.2	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>										
ES1405191-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	93.9	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	99.8	----	67	153	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>										
ES1405191-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	84.4	----	77	153	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234) - continued</b>										
ES1405191-002	Anonymous	EP071: >C34 - C40 Fraction	----	150 µg/L	101	----	67	153	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>										
ES1405191-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	33.4	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.3	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	78.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	69.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>										
ES1405191-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	73.2	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	78.2	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>										
ES1405138-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.1	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.3	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.6	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	123	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>										
ES1405298-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.7	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	84.4	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>										
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	87.4	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>										
ES1405227-008	R01_100314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.1	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.7	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	107	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405227</b>	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 11-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: GP	No. of samples received	: 28
Order number	: 0237747	No. of samples analysed	: 27
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	14-MAR-2014	17-MAR-2014	✓	14-MAR-2014	14-MAR-2014	✓	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VE_SB01_0.5, VE_MW02_0.1, VE_MW02_1.4, VF_MW03_0.5, VF_MW01_1.0, VF_MW02_0.1, VA_MW05_0.1, VA_SB03_0.5, VA_MW04_1.0, D01_100314_GP, VO_MW06_2.0, VO_MW18_0.1, VO_MW18_5.0, VU_MW16_0.5, D01_100314_CM, VU_MW16_2.0, VN_MW09_4.2, VN_MW05_6.0	10-MAR-2014	----	----	----	12-MAR-2014	24-MAR-2014	✓	
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	---	06-SEP-2014	----	19-MAR-2014	10-SEP-2014	✓	
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	---	06-SEP-2014	----	19-MAR-2014	10-SEP-2014	✓	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VA_MW05_0.1, VA_SB03_0.1, VA_MW04_0.1, VO_MW18_0.1	10-MAR-2014	---	06-SEP-2014	----	20-MAR-2014	16-SEP-2014	✓	
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	17-MAR-2014	07-APR-2014	✓	17-MAR-2014	07-APR-2014	✓	



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	18-MAR-2014	06-SEP-2014	✓	19-MAR-2014	06-SEP-2014	✓	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	18-MAR-2014	07-APR-2014	✓	19-MAR-2014	07-APR-2014	✓	
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	14-MAR-2014	07-APR-2014	✓	14-MAR-2014	07-APR-2014	✓	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VA_MW05_0.1, VA_MW04_1.0, VA_SB03_0.5	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓	



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	24-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TSP 7, TSC 7, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0, T BLANK, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0,	VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	24-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
T BLANK, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP231)</b>								
VA_MW05_0.1, VA_MW04_1.0	VA_SB03_0.5,	10-MAR-2014	13-MAR-2014	06-SEP-2014	✓	13-MAR-2014	22-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	18-MAR-2014	06-SEP-2014	✓	19-MAR-2014	06-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	----	----	----	13-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074B: Oxygenated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074C: Sulfonated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074G: Trihalomethanes</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP080: BTEXN</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074D: Fumigants	3986185-007	----	<b>1,2-Dibromoethane (EDB)</b>	106-93-4	119 %	69-117%	<b>Recovery greater than upper control limit</b>
<b>Matrix Spike (MS) Recoveries</b>							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1405298-005	Anonymous	<b>C6 - C10 Fraction</b>	C6_C10	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405227-027	R01_100314_SB	<b>Toluene-D8</b>	2037-26-5	133 %	79-131 %	<b>Recovery greater than upper data quality objective</b>
EP080S: TPH(V)/BTEX Surrogates	ES1405227-027	R01_100314_SB	<b>4-Bromofluorobenzene</b>	460-00-4	128 %	70-128 %	<b>Recovery greater than upper data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order** : **ES1405227**

**Client** : **ENVIRO RESOURCES MANAGEMENT**      **Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING      **Contact** : Barbara Hanna  
**Address** : GROUND FLOOR      **Address** : 277-289 Woodpark Road Smithfield  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail** : john.ewing@erm.com      **E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 02 8584 8888      **Telephone** : +61 2 8784 8555  
**Facsimile** : +61 02 8584 8800      **Facsimile** : +61 2 8784 8555

**Project** : VALES POINT POWER STATION      **Page** : 1 of 3  
**Order number** : 0237747  
**C-O-C number** : ----      **Quote number** : ES2014ENVRES0385 (SY/050/14 V3)  
**Site** : ----  
**Sampler** : GP      **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

**Date Samples Received** : 11-MAR-2014      **Issue Date** : 12-MAR-2014 08:54  
**Client Requested Due Date** : 21-MAR-2014      **Scheduled Reporting Date** : **21-MAR-2014**

**Delivery Details**

**Mode of Delivery** : Carrier      **Temperature** : 2.8°C - Ice present  
**No. of coolers/boxes** : 2 HARD      **No. of samples received** : 28  
**Security Seal** : Intact.      **No. of samples analysed** : 27

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC Leco analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Samples T01\_100314\_CM and T01\_100314\_GP will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS
ES1405227-002	10-MAR-2014 10:45	VE_SB01_1.5		✓		✓		✓	✓	
ES1405227-009	10-MAR-2014 14:15	VA_MW05_0.1			✓		✓			✓
ES1405227-010	10-MAR-2014 15:00	VA_SB03_0.1					✓			
ES1405227-011	10-MAR-2014 15:00	VA_SB03_0.5			✓					✓
ES1405227-012	10-MAR-2014 15:00	VA_MW04_0.1					✓			
ES1405227-013	10-MAR-2014 15:00	VA_MW04_1.0		✓		✓		✓	✓	✓
ES1405227-019	10-MAR-2014 15:00	VO_MW18_0.1					✓			
ES1405227-028	10-MAR-2014 10:15	VE_SB01_0.1	✓							

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - EP231 Perfluorocyl/ Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1405227-001	10-MAR-2014 10:25	VE_SB01_0.5	✓						✓
ES1405227-003	10-MAR-2014 11:10	VE_MW02_0.1	✓						✓
ES1405227-004	10-MAR-2014 11:20	VE_MW02_1.4	✓						✓
ES1405227-005	10-MAR-2014 11:45	VF_MW03_0.5	✓						✓
ES1405227-006	10-MAR-2014 12:35	VF_MW01_1.0	✓						✓
ES1405227-007	10-MAR-2014 13:40	VF_MW02_0.1	✓						✓
ES1405227-009	10-MAR-2014 14:15	VA_MW05_0.1	✓		✓				✓
ES1405227-011	10-MAR-2014 15:00	VA_SB03_0.5	✓		✓				✓
ES1405227-013	10-MAR-2014 15:00	VA_MW04_1.0	✓		✓				✓
ES1405227-014	10-MAR-2014 15:00	D01_100314_GP	✓						✓
ES1405227-015	10-MAR-2014 15:00	TSP 7		✓					
ES1405227-016	10-MAR-2014 15:00	T BLANK					✓		
ES1405227-017	10-MAR-2014 15:00	TSC 7		✓					
ES1405227-018	10-MAR-2014 15:00	VO_MW06_2.0				✓		✓	
ES1405227-019	10-MAR-2014 15:00	VO_MW18_0.1				✓		✓	
ES1405227-020	10-MAR-2014 15:00	VO_MW18_5.0				✓		✓	



			SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite -incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/6Metals
ES1405227-021	10-MAR-2014 15:00	VU_MW16_0.5							✓
ES1405227-022	10-MAR-2014 15:00	D01_100314_CM							✓
ES1405227-023	10-MAR-2014 15:00	VU_MW16_2.0							✓
ES1405227-025	10-MAR-2014 10:15	VN_MW09_4.2				✓		✓	
ES1405227-026	10-MAR-2014 15:00	VN_MW05_6.0				✓		✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1405227-008	10-MAR-2014 13:50	R01_100314_GP	✓			✓
ES1405227-024	10-MAR-2014 15:00	R01_100314_CM				✓
ES1405227-027	10-MAR-2014 16:30	R01_100314_SB		✓	✓	

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405227</b>	Page	: 1 of 35
Amendment	: <b>1</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747		
C-O-C number	: ----	Date Samples Received	: 11-MAR-2014
Sampler	: GP	Issue Date	: 26-MAR-2014
Site	: ----		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 27

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG020:** Positive results for samples ES1405227-8,27 have been confirmed by reanalysis.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- This report has been amended and re-released to allow the reporting of additional analytical data.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	54	----	----	----
+150µm	----	1	%	----	42	----	----	----
+300µm	----	1	%	----	36	----	----	----
+425µm	----	1	%	----	26	----	----	----
+600µm	----	1	%	----	20	----	----	----
+1180µm	----	1	%	----	16	----	----	----
+2.36mm	----	1	%	----	12	----	----	----
+4.75mm	----	1	%	----	8	----	----	----
+9.5mm	----	1	%	----	4	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	7.8	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.7	----	10.3	16.2	11.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	46	----	----	----
Sand (>75 µm)	----	1	%	----	41	----	----	----
Gravel (>2mm)	----	1	%	----	12	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	14.3	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.3	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.7	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	16.4	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	<0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	----	5	7	8
Copper	7440-50-8	5	mg/kg	7	----	12	<5	8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	<5	----	9	<5	<5
Nickel	7440-02-0	2	mg/kg	2	----	2	<2	4
Zinc	7440-66-6	5	mg/kg	12	----	65	10	18
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.05	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	<5	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
				ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
				ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1

### EP074S: VOC Surrogates



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VE_SB01_0.5	VE_SB01_1.5	VE_MW02_0.1	VE_MW02_1.4	VF_MW03_0.5
				10-MAR-2014 10:25	10-MAR-2014 10:45	10-MAR-2014 11:10	10-MAR-2014 11:20	10-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405227-001	ES1405227-002	ES1405227-003	ES1405227-004	ES1405227-005
<b>EP074S: VOC Surrogates - Continued</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	----	99.5	96.2	93.5
Toluene-D8	2037-26-5	0.1	%	91.8	----	81.2	82.5	84.6
4-Bromofluorobenzene	460-00-4	0.1	%	86.2	----	77.8	80.7	81.5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	78.3	----	87.4	78.7	82.2
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	----	88.5	85.7	90.1
2,4,6-Tribromophenol	118-79-6	0.1	%	86.5	----	92.8	86.7	91.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.9	----	91.6	88.3	94.6
Anthracene-d10	1719-06-8	0.1	%	91.0	----	89.5	87.0	92.8
4-Terphenyl-d14	1718-51-0	0.1	%	95.2	----	94.0	91.2	97.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	----	100	96.7	94.2
Toluene-D8	2037-26-5	0.1	%	86.9	----	77.1	75.9	75.5
4-Bromofluorobenzene	460-00-4	0.1	%	93.1	----	83.1	80.8	82.3



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.9	7.9	11.6	----	15.1
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	----
Asbestos Type	1332-21-4	-	--	----	----	-	-	----
Sample weight (dry)	----	0.01	g	----	----	740	652	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.740	0.652	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	11	22	5	----	16
Copper	7440-50-8	5	mg/kg	6	39	<5	----	6
Lead	7439-92-1	5	mg/kg	6	52	<5	----	6
Nickel	7440-02-0	2	mg/kg	<2	19	2	----	<2
Zinc	7440-66-6	5	mg/kg	<5	458	18	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	----	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	----	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	----	<5
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
				10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	0.0176	----	<0.0005
PFOA	335-67-1	0.0005	mg/kg	----	----	0.0007	----	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	<0.005
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	110	----	85.0
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.6	92.9	99.3	----	99.2
Toluene-D8	2037-26-5	0.1	%	90.9	82.4	88.4	----	95.0
4-Bromofluorobenzene	460-00-4	0.1	%	79.3	79.4	80.8	----	85.3
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.5	80.5	79.0	----	102
2-Chlorophenol-D4	93951-73-6	0.1	%	93.4	84.5	86.5	----	110
2,4,6-Tribromophenol	118-79-6	0.1	%	99.1	89.6	87.8	----	112



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VF_MW01_1.0	VF_MW02_0.1	VA_MW05_0.1	VA_SB03_0.1	VA_SB03_0.5
Client sampling date / time	10-MAR-2014 12:35	10-MAR-2014 13:40	10-MAR-2014 14:15	10-MAR-2014 15:00	10-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1405227-006	ES1405227-007	ES1405227-009	ES1405227-010	ES1405227-011
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	101	88.8	89.1	----	114
Anthracene-d10	1719-06-8	0.1	%	99.8	89.3	86.3	----	112
4-Terphenyl-d14	1718-51-0	0.1	%	105	94.3	91.5	----	119
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.0	93.5	100	----	99.7
Toluene-D8	2037-26-5	0.1	%	86.0	75.7	83.9	----	89.9
4-Bromofluorobenzene	460-00-4	0.1	%	85.4	79.3	86.2	----	90.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	70	----	----	----
+150µm	----	1	%	----	66	----	----	----
+300µm	----	1	%	----	55	----	----	----
+425µm	----	1	%	----	46	----	----	----
+600µm	----	1	%	----	37	----	----	----
+1180µm	----	1	%	----	27	----	----	----
+2.36mm	----	1	%	----	19	----	----	----
+4.75mm	----	1	%	----	11	----	----	----
+9.5mm	----	1	%	----	4	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	3.9	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	19.2	17.0	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	30	----	----	----
Sand (>75 µm)	----	1	%	----	51	----	----	----
Gravel (>2mm)	----	1	%	----	19	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	794	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.794	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.8	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	0.5	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.2	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.5	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	<0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	3	5	----	----
Copper	7440-50-8	5	mg/kg	----	<5	6	----	----
Lead	7439-92-1	5	mg/kg	----	5	6	----	----
Nickel	7440-02-0	2	mg/kg	----	<2	2	----	----
Zinc	7440-66-6	5	mg/kg	----	<5	9	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.04	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP074B: Oxygenated Compounds - Continued</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	----	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	0.8	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	16.1	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	2.0	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	9.2	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	3.9	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	13.1	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	32.0	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	86.0	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	100	97.6	----	----
Toluene-D8	2037-26-5	0.1	%	----	96.3	91.2	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	88.4	80.7	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	77.9	77.2	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	82.3	83.7	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	83.1	80.2	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	87.2	87.2	----	----
Anthracene-d10	1719-06-8	0.1	%	----	86.2	84.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	92.2	89.1	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
Client sampling date / time	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	ES1405227-012	ES1405227-013	ES1405227-014	ES1405227-015	ES1405227-016

### EP075(SIM)T: PAH Surrogates - Continued

### EP080S: TPH(V)/BTEX Surrogates

Compound	CAS Number	LOR	Unit	VA_MW04_0.1	VA_MW04_1.0	D01_100314_GP	TSP 7	T BLANK
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	101	98.1	106	112
Toluene-D8	2037-26-5	0.1	%	----	91.3	86.4	92.8	97.5
4-Bromofluorobenzene	460-00-4	0.1	%	----	93.6	86.4	93.8	96.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	13.2	10.7	17.6	10.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	280	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.280	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	----	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	<10	<10	<10	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	4	3	2	7
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	----	<5	6	<5	<5
Manganese	7439-96-5	5	mg/kg	----	26	6	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	14	17	6	----
Zinc	7440-66-6	5	mg/kg	----	8	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<b>0.8</b>	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<b>17.6</b>	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<b>2.2</b>	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<b>10.0</b>	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<b>4.3</b>	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<b>14.3</b>	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<b>34.9</b>	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>74.3</b>	<b>82.8</b>	<b>75.1</b>	<b>77.7</b>
2-Chlorophenol-D4	93951-73-6	0.1	%	----	<b>83.7</b>	<b>85.6</b>	<b>80.1</b>	<b>83.3</b>
2,4,6-Tribromophenol	118-79-6	0.1	%	----	<b>79.0</b>	<b>94.0</b>	<b>80.7</b>	<b>81.6</b>
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	<b>85.4</b>	<b>89.2</b>	<b>84.1</b>	<b>86.2</b>
Anthracene-d10	1719-06-8	0.1	%	----	<b>83.0</b>	<b>86.4</b>	<b>81.4</b>	<b>83.0</b>
4-Terphenyl-d14	1718-51-0	0.1	%	----	<b>87.8</b>	<b>90.1</b>	<b>86.2</b>	<b>88.0</b>
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>109</b>	<b>96.8</b>	<b>90.8</b>	<b>108</b>	<b>106</b>
Toluene-D8	2037-26-5	0.1	%	<b>94.7</b>	<b>98.1</b>	<b>96.6</b>	<b>96.2</b>	<b>98.4</b>



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	TSC 7	VO_MW06_2.0	VO_MW18_0.1	VO_MW18_5.0	VU_MW16_0.5
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
				ES1405227-017	ES1405227-018	ES1405227-019	ES1405227-020	ES1405227-021
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	95.7	95.7	97.1	98.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
Client sampling date / time	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----
	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----

Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.4	10.2	20.6	14.6	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	20	20	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	6	<2	4	7	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	21	<5	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
Client sampling date / time	10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----

Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
----------	------------	-----	------	---------------	---------------	---------------	---------------	------

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				D01_100314_CM	VU_MW16_2.0	VN_MW09_4.2	VN_MW05_6.0	----
				10-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 10:15	10-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405227-022	ES1405227-023	ES1405227-025	ES1405227-026	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	76.2	77.4	78.4	77.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	82.5	84.0	81.4	83.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	78.8	79.3	81.5	81.2	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	86.1	85.3	85.8	87.7	----
Anthracene-d10	1719-06-8	0.1	%	83.2	81.5	83.5	84.6	----
4-Terphenyl-d14	1718-51-0	0.1	%	88.5	87.3	88.6	89.1	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.7	97.7	100	114	----
Toluene-D8	2037-26-5	0.1	%	100	88.5	88.4	85.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	88.0	88.2	91.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	---	---
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	---	---
				ES1405227-008	ES1405227-024	ES1405227-027	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Beryllium	7440-41-7	0.001	mg/L	---	---	<0.001	---	---
Barium	7440-39-3	0.001	mg/L	---	---	<b>0.005</b>	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Cobalt	7440-48-4	0.001	mg/L	---	---	<0.001	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Manganese	7439-96-5	0.001	mg/L	---	---	<0.001	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Selenium	7782-49-2	0.01	mg/L	---	---	<0.01	---	---
Vanadium	7440-62-2	0.01	mg/L	---	---	<0.01	---	---
Zinc	7440-66-6	0.005	mg/L	<b>0.062</b>	<0.005	<b>0.009</b>	---	---
Boron	7440-42-8	0.05	mg/L	---	---	<0.05	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	---	---
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	---	---
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	---	---
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1.1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1.1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1.2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	R01_100314_GP	R01_100314_CM	R01_100314_SB		
10-MAR-2014 13:50				----	----
	ES1405227-008	ES1405227-024	ES1405227-027	----	----

Compound	CAS Number	LOR	Unit					
----------	------------	-----	------	--	--	--	--	--

### EP074E: Halogenated Aliphatic Compounds - Continued

### EP074F: Halogenated Aromatic Compounds

Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----

### EP074G: Trihalomethanes

Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	R01_100314_GP	R01_100314_CM	R01_100314_SB		
10-MAR-2014 13:50		10-MAR-2014 15:00	10-MAR-2014 16:30	----	----
ES1405227-008	ES1405227-024	ES1405227-027		----	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027		
----------	------------	-----	------	---------------	---------------	---------------	--	--

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_100314_GP	R01_100314_CM	R01_100314_SB	----	----
				10-MAR-2014 13:50	10-MAR-2014 15:00	10-MAR-2014 16:30	----	----
Compound	CAS Number	LOR	Unit	ES1405227-008	ES1405227-024	ES1405227-027	----	----
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	122	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	116	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	18.5	21.9	22.0	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	35.2	47.8	48.6	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	47.4	47.0	41.2	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	49.7	51.6	47.9	----	----
Anthracene-d10	1719-06-8	0.1	%	77.9	77.6	75.2	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.5	89.9	67.7	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	104	120	----	----
Toluene-D8	2037-26-5	0.1	%	129	117	133	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	124	113	128	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VA_MW05_0.1 - 10-MAR-2014 14:15	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_SB03_0.1 - 10-MAR-2014 15:00	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_MW04_0.1 - 10-MAR-2014 15:00	Mid orange - brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VO_MW18_0.1 - 10-MAR-2014 15:00	Mid grey - brown clay soil with grey and red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

**QUALITY CONTROL REPORT**

Work Order	: <b>ES1405227</b>	Page	: 1 of 33
Amendment	: <b>1</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 11-MAR-2014
Sampler	: GP	Issue Date	: 26-MAR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 28
		No. of samples analysed	: 27

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC



NATA Accredited  
 Laboratory 825

Accredited for  
 compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3339283)</b>									
ES1405194-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.0	8.9	1.2	0% - 20%
ES1405234-008	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.6	6.5	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3335667)</b>									
ES1405226-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.4	19.3	10.8	0% - 50%
ES1405227-011	VA_SB03_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	15.1	0.0	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3335668)</b>									
ES1405227-025	VN_MW09_4.2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.6	18.4	11.5	0% - 20%
ES1405233-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.3	14.7	3.6	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3337622)</b>									
ES1405225-006	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.5	0.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	0.8	0.7	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345397)</b>									
ES1405225-008	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	21.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	37	33	11.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	9	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405227-006	VF_MW01_1.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit





Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345397) - continued</b>									
ES1405227-006	VF_MW01_1.0	EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	<5	23.1	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	6	15.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	56	45	23.1	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3345399)</b>									
ES1405227-022	D01_100314_CM	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	9	14	42.7	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	20	10.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		ES1405382-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1
EG005T: Cadmium	7440-43-9			1	mg/kg	<1	<1	0.0	No Limit
EG005T: Barium	7440-39-3			10	mg/kg	50	70	43.2	No Limit
EG005T: Chromium	7440-47-3			2	mg/kg	14	20	35.2	No Limit
EG005T: Cobalt	7440-48-4			2	mg/kg	5	7	43.9	No Limit
EG005T: Nickel	7440-02-0			2	mg/kg	8	11	36.9	No Limit
EG005T: Arsenic	7440-38-2			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Copper	7440-50-8			5	mg/kg	7	10	37.3	No Limit
EG005T: Lead	7439-92-1			5	mg/kg	6	9	40.8	No Limit
EG005T: Manganese	7439-96-5			5	mg/kg	189	222	16.1	0% - 20%
EG005T: Selenium	7782-49-2			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Vanadium	7440-62-2			5	mg/kg	22	32	37.9	No Limit
EG005T: Zinc	7440-66-6			5	mg/kg	13	19	33.2	No Limit
EG005T: Boron	7440-42-8			50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3345398)</b>									
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3345398) - continued</b>									
ES1405227-006	VF_MW01_1.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3345400)</b>									
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405382-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3339403)</b>									
EB1405972-001	Anonymous	EP003: Total Organic Carbon	----	0.02	%	33.2	36.8	10.4	0% - 20%
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3335080)</b>									
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405222-011	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074C: Sulfonated Compounds (QC Lot: 3335131) - continued</b>									
ES1405227-013	VA_MW04_1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3335131) - continued</b>									
ES1405225-012	Anonymous	EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3335131)</b>									
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3335131) - continued</b>											
ES1405227-013	VA_MW04_1.0	EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3335131)</b>											
ES1405225-012	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405227-013	VA_MW04_1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335611)</b>											
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1405227-018	VO_MW06_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335611) - continued</b>									
ES1405227-018	VO_MW06_2.0	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335611)</b>									
ES1405227-001	VE_SB01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405227-018	VO_MW06_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335611) - continued</b>										
ES1405227-018	VO_MW06_2.0	EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335125)</b>										
ES1405225-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335130)</b>										
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405227-013	VA_MW04_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335610)</b>										
ES1405227-001	VE_SB01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405227-018	VO_MW06_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335125)</b>										
ES1405225-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335130)</b>										
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405227-013	VA_MW04_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335610)</b>										
ES1405227-001	VE_SB01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405227-018	VO_MW06_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3335125)</b>										
ES1405225-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405227-018	VO_MW06_2.0	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3335125) - continued</b>									
ES1405227-018	VO_MW06_2.0	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3335130)</b>									
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405227-013	VA_MW04_1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3336826)</b>									
EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3344074)</b>									
ES1405228-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0002	58.1	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.007	24.0	No Limit
ES1405380-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3335453)</b>									
EP1401814-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3335453) - continued</b>									
ES1405224-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
ES1405298-005	Anonymous	EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
ES1405299-001	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3336950) - continued</b>									
ES1405299-001	Anonymous	EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1405299-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3336950) - continued</b>									
ES1405299-001	Anonymous	EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3336950)</b>									
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		ES1405299-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit
EP074: 4-Chlorotoluene	106-43-4			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,3-Dichlorobenzene	541-73-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,4-Dichlorobenzene	106-46-7			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2-Dichlorobenzene	95-50-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,4-Trichlorobenzene	120-82-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6			5	µg/L	<5	<5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3336950)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074G: Trihalomethanes (QC Lot: 3336950) - continued</b>									
ES1405298-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3335235)</b>									
ES1405191-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1405191-004	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335235)</b>									
ES1405191-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3335235) - continued</b>									
ES1405191-001	Anonymous	EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1405191-004	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3335234)</b>									
ES1405191-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1405191-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	80	100	21.8	No Limit
ES1405299-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	120	140	9.2	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335234)</b>									
ES1405191-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3335234) - continued</b>									
ES1405191-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	2590	3050	16.2	0% - 20%
ES1405299-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	170	160	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3336949)</b>									
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405299-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	12	12	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	10	11	10.8	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	4	4	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3337622)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.4	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	107	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	96.4	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	112	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	103	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	117	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.0	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	108	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	112	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	115	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.4	75	131	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399) - continued</b>									
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	120	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.1	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.0	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3339403)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	90.0	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	87.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3335131)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	107	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	108	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	106	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	108	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3335131)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	83.9	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	113	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	117	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	115	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3335131)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	82.0	54	126	
<b>EP074D: Fumigants (QCLot: 3335131)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	90.0	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	108	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	88.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	84.3	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	101	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131) - continued</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	51.7	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	65.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	70.1	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	82.5	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	90.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	85.3	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	94.8	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	88.8	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	111	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	102	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.1	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	105	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	113	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	116	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	119	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	83.4	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	107	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	108	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	74.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.0	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	59.8	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	112	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	116	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	107	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131) - continued</b>									
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	111	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	110	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	64.3	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	68.1	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3335131)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	97.6	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.4	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	87.6	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.0	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	84.1	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	80.7	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	81.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	76.6	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	74.9	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	88.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	79.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	64.2	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	77.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	11.9	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.4	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	82.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	81.1	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	81.7	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	82.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	81.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	83.7	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	84.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	78.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	81.5	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	87.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	90.4	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	82.4	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	76.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	80.6	71.7	113	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611) - continued</b>									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.2	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	93.1	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	83.9	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	71.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	85.0	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	92.4	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	104	63	131	
<b>EP080: BTEXN (QCLot: 3335125)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.9	62	138	
<b>EP080: BTEXN (QCLot: 3335130)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	69.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	72.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	76.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	77.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.7	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	88.9	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	108	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	108	56	138	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.8	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.1	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	109	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.8	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.4	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.1	83	117	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.9	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3336950)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	109	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	107	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	96.6	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.3	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.3	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	102	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	101	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	96.1	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	91.7	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3336950)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	104	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	128	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	138	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	135	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3336950)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	74.3	72.8	127	
<b>EP074D: Fumigants (QCLot: 3336950)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.7	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	98.3	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	100	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	# 119	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	74.2	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	85.1	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	73.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	72.7	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	80.8	65	131	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950) - continued</b>									
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	81.0	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	81.3	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.6	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	92.1	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	85.7	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	99.8	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	80.5	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	103	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	107	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	120	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	121	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	106	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.0	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	112	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	103	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	119	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	113	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	90.4	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	94.3	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	69.9	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	105	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	105	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	95.5	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	98.1	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.7	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	98.1	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	98.4	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	81.4	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	90.2	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3336950)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	89.1	76	118	
EP074: Dibromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	89.2	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	90.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	102	73.5	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>									





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235) - continued</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	31.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	62.0	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	81.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	78.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.4	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	74.3	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.4	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	93.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	65.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	34.7	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	84.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	94.4	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	70.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	94.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	84.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	92.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.8	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	94.5	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	75.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	91.9	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.4	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	71.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	81.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	98.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.8	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	104	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	96.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.8	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.2	75	127	
<b>EP080: BTEXN (QCLot: 3336949)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.3	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	112	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.3	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	99.4	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3336949) - continued</b>								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>							
ES1405225-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	101	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	98.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	88.5	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	90.7	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>							
ES1405227-022	D01_100314_CM	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	98.9	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	109	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>							
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>							
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	5 mg/kg	94.2	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>							
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>							
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.0	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	77.5	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131) - continued</b>								
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.6	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>								
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.5	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	77.0	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.8	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.9	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	33.2	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>								
ES1405227-001	VE_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	117	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>								
ES1405227-001	VE_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	77.7	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	67.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	65.3	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>								
ES1405227-001	VE_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	63.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	52	132	
<b>EP080: BTEXN (QCLot: 3335125)</b>								
ES1405227-018	VO_MW06_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	70	130		
<b>EP080: BTEXN (QCLot: 3335130)</b>								
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3335130) - continued</b>								
ES1405225-012	Anonymous	EP080: Toluene	108-88-3	2.5 mg/kg	74.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.8	70	130	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	75.3	70	130	
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>								
EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	109	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	106	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	109	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>							
ES1405227-008	R01_100314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.1	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.7	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	107	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>							
ES1405138-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.1	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>							
ES1405298-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.7	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	84.4	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>							
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	87.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>							
ES1405191-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	33.4	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.3	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	78.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	69.8	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>							
ES1405191-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	73.2	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	78.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>								
ES1405191-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	93.9	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	99.8	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>								
ES1405191-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	84.4	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	101	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	70	130	
<b>EP080: BTEXN (QCLot: 3336949)</b>								
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	114	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	123	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	70	130	
	91-20-3	25 µg/L	102	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3335080)</b>										
ES1405222-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335125)</b>										
ES1405227-018	VO_MW06_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.8	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335125)</b>										
ES1405227-018	VO_MW06_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.3	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3335125)</b>										
ES1405227-018	VO_MW06_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.0	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080: BTEXN (QCLot: 3335125) - continued</b>											
ES1405227-018	VO_MW06_2.0	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.2	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335130)</b>											
ES1405225-012	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	117	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335130)</b>											
ES1405225-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.2	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3335130)</b>											
ES1405225-012	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.9	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.3	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3335131)</b>											
ES1405225-012	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	80.0	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	77.5	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3335131)</b>											
ES1405225-012	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335610)</b>											
ES1405227-001	VE_SB01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	77.7	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	67.2	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	65.3	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335610)</b>											
ES1405227-001	VE_SB01_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.5	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	63.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	53.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335611)</b>											
ES1405227-001	VE_SB01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	76.5	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	77.0	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.9	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	33.2	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611)</b>											
ES1405227-001	VE_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.7	----	70	130	----	----	





Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335611) - continued</b>										
ES1405227-001	VE_SB01_0.5	EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.4	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3336826)</b>										
EP1401809-062	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	109	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	106	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	109	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345397)</b>										
ES1405225-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.0	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	101	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	101	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	98.4	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	88.5	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	90.7	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345398)</b>										
ES1405225-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3345399)</b>										
ES1405227-022	D01_100314_CM	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	98.9	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	109	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	108	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3345400)</b>										
ES1405227-022	D01_100314_CM	EG035T: Mercury	7439-97-6	5 mg/kg	94.2	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3335234)</b>										
ES1405191-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	93.9	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	99.8	----	67	153	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234)</b>										
ES1405191-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	105	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	84.4	----	77	153	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3335234) - continued</b>										
ES1405191-002	Anonymous	EP071: >C34 - C40 Fraction	----	150 µg/L	101	----	67	153	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3335235)</b>										
ES1405191-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	33.4	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.3	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	78.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	69.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3335235)</b>										
ES1405191-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	73.2	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	78.2	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3335453)</b>										
ES1405138-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.1	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.3	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3336949)</b>										
ES1405298-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.6	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	123	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3336950)</b>										
ES1405298-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.7	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	84.4	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3336950)</b>										
ES1405298-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	87.4	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3344074)</b>										
ES1405227-008	R01_100314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.1	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.7	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	107	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405227</b>	<b>Page</b>	: 1 of 13
<b>Amendment</b>	: <b>1</b>		
<b>Client</b>	: ENVIRO RESOURCES MANAGEMENT	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>C-O-C number</b>	: ----	<b>Date Samples Received</b>	: 11-MAR-2014
<b>Sampler</b>	: GP	<b>Issue Date</b>	: 26-MAR-2014
<b>Order number</b>	: 0237747		
<b>Quote number</b>	: SY/050/14 V3	<b>No. of samples received</b>	: 28
		<b>No. of samples analysed</b>	: 27

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	14-MAR-2014	17-MAR-2014	✓	14-MAR-2014	14-MAR-2014	✓	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VE_SB01_0.5, VE_MW02_0.1, VE_MW02_1.4, VF_MW03_0.5, VF_MW01_1.0, VF_MW02_0.1, VA_MW05_0.1, VA_SB03_0.5, VA_MW04_1.0, D01_100314_GP, VO_MW06_2.0, VO_MW18_0.1, VO_MW18_5.0, VU_MW16_0.5, D01_100314_CM, VU_MW16_2.0, VN_MW09_4.2, VN_MW05_6.0	10-MAR-2014	----	----	----	12-MAR-2014	24-MAR-2014	✓	
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	---	06-SEP-2014	----	19-MAR-2014	10-SEP-2014	✓	
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	---	06-SEP-2014	----	19-MAR-2014	10-SEP-2014	✓	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VA_MW05_0.1, VA_SB03_0.1, VA_MW04_0.1, VO_MW18_0.1	10-MAR-2014	---	06-SEP-2014	----	20-MAR-2014	16-SEP-2014	✓	
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	17-MAR-2014	07-APR-2014	✓	17-MAR-2014	07-APR-2014	✓	



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b>								
VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	18-MAR-2014	06-SEP-2014	✓	19-MAR-2014	06-SEP-2014	✓	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b>								
VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	18-MAR-2014	07-APR-2014	✓	19-MAR-2014	07-APR-2014	✓	
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b>								
VE_SB01_1.5, VA_MW04_1.0	10-MAR-2014	14-MAR-2014	07-APR-2014	✓	14-MAR-2014	07-APR-2014	✓	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b>								
VA_MW05_0.1, VA_MW04_1.0, VA_SB03_0.5	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b>								
VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	21-APR-2014	✓	



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	17-MAR-2014	✓	13-MAR-2014	17-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	14-MAR-2014	21-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0, VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	24-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TSP 7, TSC 7, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0, T BLANK, VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VE_SB01_0.5, VE_MW02_1.4, VF_MW01_1.0, VA_MW05_0.1, VA_MW04_1.0,	VE_MW02_0.1, VF_MW03_0.5, VF_MW02_0.1, VA_SB03_0.5, D01_100314_GP	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	13-MAR-2014	24-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
T BLANK, VO_MW18_0.1, VU_MW16_0.5, VU_MW16_2.0, VN_MW05_6.0	VO_MW06_2.0, VO_MW18_5.0, D01_100314_CM, VN_MW09_4.2,	10-MAR-2014	12-MAR-2014	24-MAR-2014	✓	18-MAR-2014	24-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP231)</b>								
VA_MW05_0.1, VA_MW04_1.0	VA_SB03_0.5,	10-MAR-2014	13-MAR-2014	06-SEP-2014	✓	13-MAR-2014	22-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	18-MAR-2014	06-SEP-2014	✓	19-MAR-2014	06-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	----	----	----	13-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R01_100314_GP		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074B: Oxygenated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074C: Sulfonated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP074G: Trihalomethanes</b>								
Amber VOC Vial - Sulfuric Acid (EP074) R01_100314_GP	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓	
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	13-MAR-2014	17-MAR-2014	✓	14-MAR-2014	22-APR-2014	✓
<b>EP080: BTEXN</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_100314_GP, R01_100314_SB	R01_100314_CM,	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	17-MAR-2014	24-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074D: Fumigants	3986185-007	----	<b>1,2-Dibromoethane (EDB)</b>	106-93-4	119 %	69-117%	<b>Recovery greater than upper control limit</b>
<b>Matrix Spike (MS) Recoveries</b>							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1405298-005	Anonymous	<b>C6 - C10 Fraction</b>	C6_C10	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405227-027	R01_100314_SB	<b>Toluene-D8</b>	2037-26-5	133 %	79-131 %	<b>Recovery greater than upper data quality objective</b>
EP080S: TPH(V)/BTEX Surrogates	ES1405227-027	R01_100314_SB	<b>4-Bromofluorobenzene</b>	460-00-4	128 %	70-128 %	<b>Recovery greater than upper data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.







CHAIN OF CUSTODY

ALS Laboratory  
Please tick ->

ENT: ERM  
 FICE: PYRMONT  
 SUBJECT: VALES POINT POWER STATION  
 DER NUMBER: 0237747  
 E MANAGER: JOHN EWING  
 VPLER: CHAS MASRAPS  
 C emailed to ALS? ( YES / NO )  
 all Reports to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com  
 all Invoice to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com

TURNAROUND REQUIREMENTS :  Standard TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
 Non Standard or Urgent TAT (List due date):  
 ALS QUOTE NO.: SY-050-14

COC SEQUENCE NUMBER (Circle) (Free Ice / Frozen Ice bricks present upon receipt?)  
 COC: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7  
 RECEIVED BY: SOY...  
 DATE/TIME: 11/3/14 1900

RELINQUISHED BY:  
 DATE/TIME:  
 RECEIVED BY:  
 DATE/TIME:

ALS JOB	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB Suite Codes must be ticked to extract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).											Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/RTEX/PAH	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH
18	VO-MW06-2.0	10/3/14	0	(1 bag, 2 jars)	3	X	X	X									
19	VO-MW18-0.1	10/3/14	0	(1 bag, 2 jars)	3	X	X	X									
20	VO-MW18-5.0	10/3/14	0	(2 jars)	2	X	X	X									
21	VU-MW16-0.5	10/3/14	0	(2 jars, 1 bag)	3	X	X	X									
22	D01-100314-CM	10/3/14	0	(1 jar)	1	X	X	X									
	<del>T01-100314-CM</del>	<del>10/3/14</del>	<del>0</del>	<del>(1 jar)</del>	<del>1</del>	<del>X</del>	<del>X</del>	<del>X</del>									
23	VU-MW16-2.0	10/3/14	0	(2 jars, 1 bag)	3	X	X	X									
24	D01-100314-CM	10/3/14	W	2 vials, 1 bottle, 1 jar	3	X	X	X									
			S														
			S														
			S														
			S														

Comments on likely contaminant levels, dilutions or samples requiring specific GC analysis etc.

RECEIVED BY: SOY... DATE/TIME: 11/3/14 1900

RELINQUISHED BY: SOY... DATE/TIME: 11/3/14 1900

CONTACT PH: 0401 776 290  
 SAMPLER MOBILE: 0439 130527  
 EDD FORMAT (or default):

Send to Eurofins Analyst

Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CRC = Nitric Preserved CRC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Air-tight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air-tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Soluble Solids; B = Unpreserved Bag.



# Certificate of Analysis

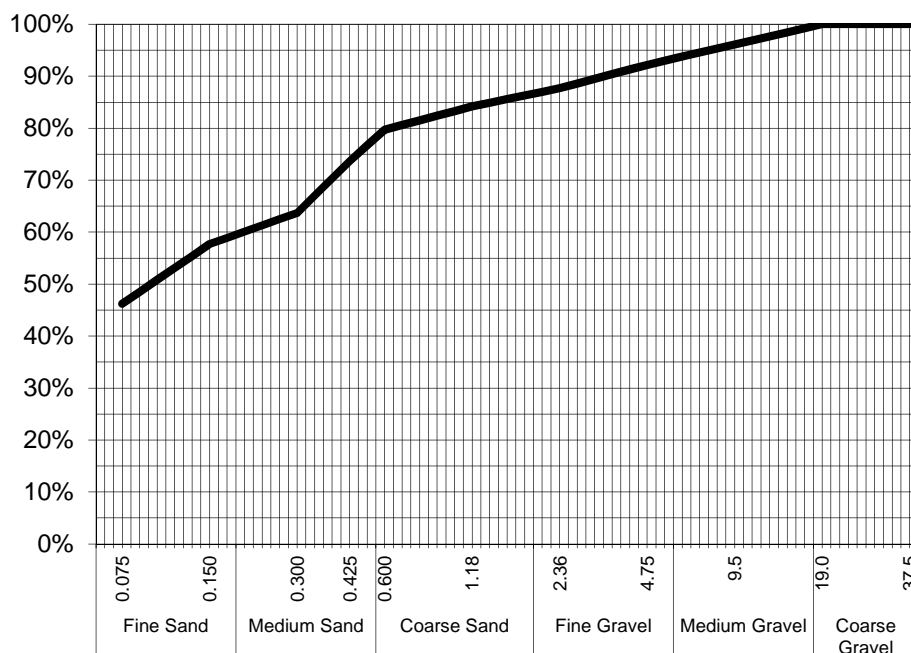
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 19-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 11-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405227-002 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VE\_SB01\_1.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	96%
4.75	92%
2.36	88%
1.18	84%
0.600	80%
0.425	74%
0.300	64%
0.150	58%
0.075	46%

Samples analysed as received.

Median Particle Size (mm)	0.075
---------------------------	-------

## Sample Comments:

**Analysed:** 14-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



# Certificate of Analysis

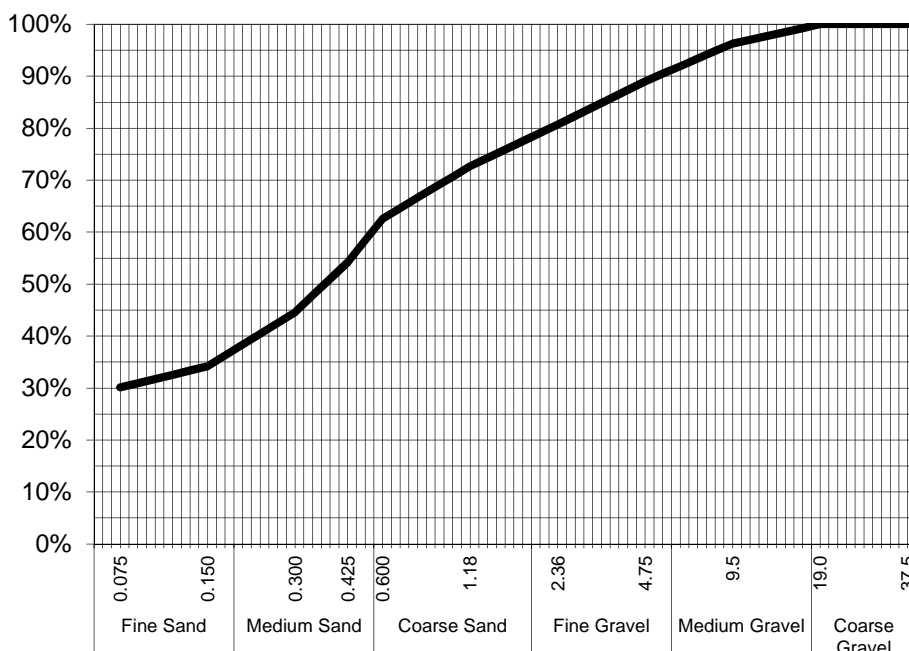
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 19-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 11-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405227-013 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VA\_MW04\_1.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	96%
4.75	89%
2.36	81%
1.18	73%
0.600	63%
0.425	54%
0.300	45%
0.150	34%
0.075	30%

Samples analysed as received.

Median Particle Size (mm)	0.300
---------------------------	-------

## Sample Comments:

**Analysed:** 14-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand, fines and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.





## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405362</b>	Page	: 1 of 33
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 20-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 28
Site	: ----	No. of samples analysed	: 25
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG005T:** Poor precision was obtained for Manganese on sample ES1405276-076. Results have been confirmed by re-extraction and reanalysis.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	12.2	----	18.2	12.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	586	----	670	----	726
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.586	----	0.670	----	0.726
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg	----	4	----	5	8
Copper	7440-50-8	5	mg/kg	----	21	----	10	41
Lead	7439-92-1	5	mg/kg	----	<5	----	<5	50
Nickel	7440-02-0	2	mg/kg	----	17	----	3	9
Zinc	7440-66-6	5	mg/kg	----	56	----	33	518
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<b>8.0</b>	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	<0.0005	<b>0.0026</b>
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	<0.005	<0.005
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	<b>73.5</b>	----	<b>76.7</b>	<b>70.7</b>
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	<b>92.2</b>	----	<b>114</b>	<b>102</b>
Toluene-D8	2037-26-5	0.1	%	----	<b>95.3</b>	----	<b>116</b>	<b>102</b>
4-Bromofluorobenzene	460-00-4	0.1	%	----	<b>80.8</b>	----	<b>104</b>	<b>91.0</b>
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>95.5</b>	----	<b>93.9</b>	<b>90.3</b>





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW06_0.2	VA_MW06_0.5	VA_MW03_0.2	VA_MW03_1.0	VA_MW02_0.1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-001	ES1405362-002	ES1405362-003	ES1405362-004	ES1405362-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	95.0	----	92.8	88.7
2,4,6-Tribromophenol	118-79-6	0.1	%	----	63.8	----	62.0	60.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	93.3	----	91.3	88.2
Anthracene-d10	1719-06-8	0.1	%	----	104	----	102	96.6
4-Terphenyl-d14	1718-51-0	0.1	%	----	99.7	----	97.8	94.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	86.8	----	108	96.0
Toluene-D8	2037-26-5	0.1	%	----	85.9	----	105	92.0
4-Bromofluorobenzene	460-00-4	0.1	%	----	81.6	----	104	92.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	15.8	13.3	18.2	14.8
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	926	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.926	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	9	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	11	8	10	5
Copper	7440-50-8	5	mg/kg	----	24	33	<5	8
Lead	7439-92-1	5	mg/kg	----	7	8	8	5
Nickel	7440-02-0	2	mg/kg	----	5	5	2	4
Zinc	7440-66-6	5	mg/kg	----	34	28	6	12
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	73.6	73.7	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	99.2	104	125	----
Toluene-D8	2037-26-5	0.1	%	----	97.8	99.7	116	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	87.7	89.0	106	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	91.5	104	97.4	79.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB02_0.1	VA_SB02_0.5	VA_SB02_1.0	VF_MW02_2.0	VG_MW04_0.2
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-006	ES1405362-007	ES1405362-008	ES1405362-010	ES1405362-011
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	90.9	102	92.6	90.0
2,4,6-Tribromophenol	118-79-6	0.1	%	----	60.8	63.7	75.9	61.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	90.4	95.0	93.6	89.8
Anthracene-d10	1719-06-8	0.1	%	----	99.4	105	101	93.2
4-Terphenyl-d14	1718-51-0	0.1	%	----	93.1	101	97.4	90.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	93.5	98.1	118	91.8
Toluene-D8	2037-26-5	0.1	%	----	88.2	90.0	105	90.4
4-Bromofluorobenzene	460-00-4	0.1	%	----	87.2	89.7	105	93.0





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW03_0.5	VU_SB03_0.5	VU_MW03_0.5	TRIP SPIKE 2	TRIP BLANK
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-012	ES1405362-014	ES1405362-015	ES1405362-016	ES1405362-017
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	12.4	14.3	13.6	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	4	9	8	----	----
Copper	7440-50-8	5	mg/kg	<5	8	11	----	----
Lead	7439-92-1	5	mg/kg	<5	5	7	----	----
Nickel	7440-02-0	2	mg/kg	<2	6	<2	----	----
Zinc	7440-66-6	5	mg/kg	<5	24	49	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW03_0.5	VU_SB03_0.5	VU_MW03_0.5	TRIP SPIKE 2	TRIP BLANK
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-012	ES1405362-014	ES1405362-015	ES1405362-016	ES1405362-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<b>150</b>	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<b>420</b>	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<b>570</b>	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<b>290</b>	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<b>290</b>	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<b>580</b>	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<b>290</b>	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<b>0.8</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>19.7</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<b>2.2</b>	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>10.4</b>	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<b>4.2</b>	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW03_0.5	VU_SB03_0.5	VU_MW03_0.5	TRIP SPIKE 2	TRIP BLANK
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	10-MAR-2014 15:00	10-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-012	ES1405362-014	ES1405362-015	ES1405362-016	ES1405362-017
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	14.6	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	37.3	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	81.0	80.8	82.4	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	91.1	84.3	85.9	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	79.8	75.6	76.8	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	90.7	90.0	91.3	----	----
Anthracene-d10	1719-06-8	0.1	%	95.2	93.6	96.1	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	90.3	89.4	92.2	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	95.2	98.0	110	99.2	95.8
Toluene-D8	2037-26-5	0.1	%	93.4	85.5	92.1	94.0	84.1
4-Bromofluorobenzene	460-00-4	0.1	%	95.1	94.2	100	98.3	84.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC	VN_MW07_1.8	VN_MW06_2.3	VN_SB05_0.2	VF_MW03_2.0
				10-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-018	ES1405362-019	ES1405362-021	ES1405362-023	ES1405362-024
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	16.3	12.7	3.0	18.1
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	<10	<10	940	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	2	<2	2	6
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	----	<5	<5	7	8
Manganese	7439-96-5	5	mg/kg	----	<5	<5	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	<5	<5	13	----
Zinc	7440-66-6	5	mg/kg	----	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	----	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC	VN_MW07_1.8	VN_MW06_2.3	VN_SB05_0.2	VF_MW03_2.0
				10-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-018	ES1405362-019	ES1405362-021	ES1405362-023	ES1405362-024
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC	VN_MW07_1.8	VN_MW06_2.3	VN_SB05_0.2	VF_MW03_2.0
				10-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-018	ES1405362-019	ES1405362-021	ES1405362-023	ES1405362-024
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	----	----	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC	VN_MW07_1.8	VN_MW06_2.3	VN_SB05_0.2	VF_MW03_2.0
				10-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-018	ES1405362-019	ES1405362-021	ES1405362-023	ES1405362-024
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC	VN_MW07_1.8	VN_MW06_2.3	VN_SB05_0.2	VF_MW03_2.0
				10-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405362-018	ES1405362-019	ES1405362-021	ES1405362-023	ES1405362-024
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.9	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	20.0	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	2.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	11.9	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	4.9	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	16.8	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	40.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	106
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	99.6
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	91.3
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	78.5	79.7	79.8	95.5
2-Chlorophenol-D4	93951-73-6	0.1	%	----	87.0	90.0	90.6	90.4
2,4,6-Tribromophenol	118-79-6	0.1	%	----	72.1	73.4	78.9	76.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	85.9	88.6	90.2	90.2
Anthracene-d10	1719-06-8	0.1	%	----	90.0	93.4	94.2	99.8
4-Terphenyl-d14	1718-51-0	0.1	%	----	85.8	89.7	90.0	94.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	90.7	98.3	104	99.6
Toluene-D8	2037-26-5	0.1	%	116	82.1	104	94.9	89.9
4-Bromofluorobenzene	460-00-4	0.1	%	107	95.0	101	98.7	92.0



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_4.0	VA_MW05_6.0	VA_SB03_3.0	VA_MW04_2.0	----
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405362-025	ES1405362-026	ES1405362-027	ES1405362-028	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	16.1	19.1	18.9	13.5	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	4	14	3	6	----
Copper	7440-50-8	5	mg/kg	<5	18	<5	15	----
Lead	7439-92-1	5	mg/kg	5	<5	<5	6	----
Nickel	7440-02-0	2	mg/kg	<2	4	<2	6	----
Zinc	7440-66-6	5	mg/kg	<5	21	<5	23	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_4.0	VA_MW05_6.0	VA_SB03_3.0	VA_MW04_2.0	----
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405362-025	ES1405362-026	ES1405362-027	ES1405362-028	----
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_4.0	VA_MW05_6.0	VA_SB03_3.0	VA_MW04_2.0	----
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405362-025	ES1405362-026	ES1405362-027	ES1405362-028	----
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VF_MW01_4.0	VA_MW05_6.0	VA_SB03_3.0	VA_MW04_2.0	----
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405362-025	ES1405362-026	ES1405362-027	ES1405362-028	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<b>8.0</b>	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VF_MW01_4.0	VA_MW05_6.0	VA_SB03_3.0	VA_MW04_2.0	----
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405362-025	ES1405362-026	ES1405362-027	ES1405362-028	----
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	69.4	69.4	71.0	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	119	99.3	99.2	86.6	----
Toluene-D8	2037-26-5	0.1	%	112	116	115	106	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	96.8	95.4	89.1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	91.4	99.5	100	96.2	----
2-Chlorophenol-D4	93951-73-6	0.1	%	91.5	98.7	100	96.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	95.4	97.0	88.2	84.3	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	88.7	95.7	92.8	93.7	----
Anthracene-d10	1719-06-8	0.1	%	97.6	106	104	102	----
4-Terphenyl-d14	1718-51-0	0.1	%	91.1	99.8	98.7	99.2	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	101	102	88.9	----
Toluene-D8	2037-26-5	0.1	%	101	112	113	104	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	102	101	92.6	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_110314\_GP

---

---

---

---

Client sampling date / time

11-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405362-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP066: Polychlorinated Biphenyls (PCB)

Total Polychlorinated biphenyls	---	1	µg/L	<1	---	---	---	---
---------------------------------	-----	---	------	----	-----	-----	-----	-----

### EP074A: Monocyclic Aromatic Hydrocarbons

Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---

### EP074B: Oxygenated Compounds

Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---

### EP074C: Sulfonated Compounds

Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---
------------------	---------	---	------	----	-----	-----	-----	-----

### EP074D: Fumigants

2,2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_110314\_GP

---

---

---

---

Client sampling date / time

11-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405362-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP074D: Fumigants - Continued

1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
-------------------------	----------	---	------	----	-----	-----	-----	-----

### EP074E: Halogenated Aliphatic Compounds

Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1.1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1.1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1.2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---

### EP074F: Halogenated Aromatic Compounds

Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_110314\_GP

---

---

---

---

Client sampling date / time

11-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405362-009	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---



**Analytical Results**

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_110314\_GP

---

---

---

---

Client sampling date / time

11-MAR-2014 15:00

---

---

---

---

Compound CAS Number LOR Unit ES1405362-009

---

---

---

---

**EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued**

Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

**EP080/071: Total Petroleum Hydrocarbons**

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

**EP080/071: Total Recoverable Hydrocarbons - NEPM 2013**

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

**EP080: BTEXN**

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_110314\_GP

----

----

----

----

Client sampling date / time

11-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1405362-009	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	68.2	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	95.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.9	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	50.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	64.6	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	64.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	72.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	75.1	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	86.8	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	92.3	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VA_MW06_0,2 - 11-MAR-2014 15:00	Mid orange - brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_MW03_0,2 - 11-MAR-2014 15:00	Mid grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VA_MW02_0,1 - 11-MAR-2014 15:00	Mid yellow - grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VA_SB02_0,1 - 11-MAR-2014 15:00	Mid grey clay soil with grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405362</b>	Page	: 1 of 33
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 20-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 28
Order number	: 0237747	No. of samples analysed	: 25
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3343289)</b>									
ES1405199-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.3	7.4	34.1	No Limit
<b>EA055: Moisture Content (QC Lot: 3343290)</b>									
ES1405362-011	VG_MW04_0.2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.8	14.4	2.7	0% - 50%
ES1405362-028	VA_MW04_2.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.5	12.3	9.5	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3343861)</b>									
ES1405194-014	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	297	314	5.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	14	13.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	34	38	11.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	7	15.5	No Limit
ES1405276-076	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	23	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	15	14	9.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	13	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	19	18	5.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	44	17.6	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3343863)</b>									
ES1405362-012	VG_MW03_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3343863) - continued</b>									
ES1405362-028	VA_MW04_2.0	EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	17	13.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	20	22	10.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	23	21	7.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	23	25	7.1	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3343862)</b>									
ES1405194-014	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405276-076	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3343864)</b>									
ES1405362-012	VG_MW03_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3342882)</b>									
ES1405362-004	VA_MW03_1.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405524-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342512)</b>									
ES1405362-002	VA_MW06_0.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3342512)</b>									
ES1405362-002	VA_MW06_0.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342512)</b>									
ES1405362-002	VA_MW06_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342512)</b>									
ES1405362-002	VA_MW06_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342512)</b>									
ES1405362-002	VA_MW06_0.5	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-002	VA_MW06_0.5	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405362-028	VA_MW04_2.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit

**EP074F: Halogenated Aromatic Compounds (QC Lot: 3342512)**



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-002	VA_MW06_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342512)</b>									
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342494)</b>									
ES1405362-011	VG_MW04_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342494) - continued</b>									
ES1405362-011	VG_MW04_0.2	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405466-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342919)</b>									
ES1405362-002	VA_MW06_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342494)</b>									
ES1405362-011	VG_MW04_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405466-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919)</b>									
ES1405362-002	VA_MW06_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919) - continued</b>									
ES1405362-002	VA_MW06_0.5	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405362-028	VA_MW04_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3341817)</b>									
ES1405362-011	VG_MW04_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405423-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342493)</b>									
ES1405362-011	VG_MW04_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405466-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342511)</b>									
ES1405362-002	VA_MW06_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342917)</b>									
ES1405362-002	VA_MW06_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3341817)</b>									
ES1405362-011	VG_MW04_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405423-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	62	68	7.9	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342493)</b>									
ES1405362-011	VG_MW04_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405466-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342511)</b>									
ES1405362-002	VA_MW06_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342917)</b>									
ES1405362-002	VA_MW06_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3341817)</b>									
ES1405362-011	VG_MW04_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3341817) - continued</b>									
ES1405362-011	VG_MW04_0.2	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405423-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342511)</b>									
ES1405362-002	VA_MW06_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405362-028	VA_MW04_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3341783)</b>									
ES1405362-002	VA_MW06_0.5	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405524-012	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0083	0.0089	6.9	0% - 50%
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3341967)</b>									
ES1405329-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3341967) - continued</b>									
ES1405329-006	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.046	0.046	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.146	0.149	2.0	0% - 20%
EW1400798-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0007	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.015	0.015	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.034	0.035	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.025	0.025	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.018	0.018	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341936)</b>									
EB1405821-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405265-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1405397-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3340820) - continued</b>									
ES1405397-003	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3340820) - continued</b>									
ES1405261-001	Anonymous	EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1405397-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3340820) - continued</b>										
ES1405261-001	Anonymous	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
ES1405397-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074G: Trihalomethanes (QC Lot: 3340820)</b>										
ES1405261-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1405397-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	22	21	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	11	10	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074H: Naphthalene (QC Lot: 3340820)</b>										
ES1405261-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1405397-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343861)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	114	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	110	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	117	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	114	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	127	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343863)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	108	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	116	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	118	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	113	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	116	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	125	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	121	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	113	85	127	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	120	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	118	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	125	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	128	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343862)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.3	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343864)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	78.2	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.3	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342512)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	----	1 mg/kg	71.1	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	71.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	66.9	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	1 mg/kg	67.8	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	68.9	64	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342512) - continued</b>									
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	68.8	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	67.5	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	66.7	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	----	1 mg/kg	65.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342512)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	41.0	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	96.2	58	136	
		5	mg/kg	----	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	84.8	54	138	
		5	mg/kg	----	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	87.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342512)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	72.2	54	126	
<b>EP074D: Fumigants (QCLot: 3342512)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	62.7	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	77.3	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	71.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	67.5	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	72.8	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	51.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	68.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	81.0	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	76.1	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	74.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	76.8	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	78.2	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	53.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	77.0	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	76.9	66	132	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512) - continued</b>									
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	66.6	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	75.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	74.4	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	82.2	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	77.6	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	82.7	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	71.4	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	67.4	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	67.6	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	79.2	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	36.6	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	69.3	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	61.5	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	124	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	70.7	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	69.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	69.5	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	70.7	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	70.1	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	71.2	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	60.4	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	66.9	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342512)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	75.0	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	76.1	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	75.5	60	126	
<b>EP074H: Naphthalene (QCLot: 3342512)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	78.4	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342494)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	96.5	74	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342494) - continued</b>									
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	92.6	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	92.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	75.8	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	81.4	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	84.0	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	90.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	82.4	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.0	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	72.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	12.4	10	57	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	106	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	110	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	108	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.0	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	100	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	89.3	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	91.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	78.4	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	16.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342494)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	98.1	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	99.9	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	103	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	92.0	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	100	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	88.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	80.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	84.9	71.7	113	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342494) - continued</b>									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	82.8	72.4	114	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	115	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	114	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	94.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.4	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.1	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341817)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	100	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342493)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	111	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	129	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	102	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	97.8	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	94.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	84.6	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341817)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.1	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342493)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	112	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	134	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	97.6	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>									



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511) - continued</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	98.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	89.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	93.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	102	63	131	
<b>EP080: BTEXN (QCLot: 3341817)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	83.4	62	138	
<b>EP080: BTEXN (QCLot: 3342511)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	----	1 mg/kg	92.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.3	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	----	1 mg/kg	84.9	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	----	1 mg/kg	85.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	----	1 mg/kg	79.4	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	100	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	105	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	136	56	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3341967)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.2	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.4	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.0	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341936)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341936) - continued</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.7	77	115	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342312)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	84.6	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3340820)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	101	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.6	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	90.6	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	93.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	92.4	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	93.9	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	90.7	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	91.2	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	90.6	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3340820)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	105	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	129	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	128	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	130	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3340820)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.6	72.8	127	
<b>EP074D: Fumigants (QCLot: 3340820)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	79.4	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	101	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	98.9	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	103	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	107	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	85.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	92.5	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	93.8	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	97.1	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	93.4	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	104	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	101	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	74.5	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.3	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	100	77	117	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820) - continued</b>									
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	84.5	61	119	
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.9	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	112	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	100	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	110	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	121	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	111	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	100	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	97.4	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	105	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	108	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	124	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	123	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	115	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	76.7	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	103	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	93.6	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.2	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	93.9	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.3	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	95.0	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	95.8	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	79.1	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	84.9	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3340820)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.9	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	98.8	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	105	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	110	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3340820)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	95.3	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342311)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	53.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	64.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342311) - continued</b>									
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	84.5	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	79.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	# 61.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	80.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.5	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	75.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	79.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	86.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	41.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342311)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	78.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	77.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	74.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	72.2	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	77.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	75.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342311) - continued</b>									
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	74.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.4	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	74.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	72.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	74.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.2	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342310)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	90.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.7	62	120	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342310)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.5	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	103	67	127	
<b>EP080: BTEXN (QCLot: 3340821)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	95.0	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.9	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70	124	



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343861)</b>							
ES1405194-014	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	# Not Determined	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	119	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	95.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	90.8	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	96.5	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343863)</b>							
ES1405362-012	VG_MW03_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	124	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	122	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	117	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	122	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	117	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	125	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343862)</b>							
ES1405194-014	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	103	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343864)</b>							
ES1405362-012	VG_MW03_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.4	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>							
ES1405362-004	VA_MW03_1.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>							
ES1405362-002	VA_MW06_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.5	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>							
ES1405362-002	VA_MW06_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342494)</b>							
ES1405362-011	VG_MW04_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	90.9	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	100	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	30.3	20	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919) - continued</b>							
ES1405362-002	VA_MW06_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342494)</b>							
ES1405362-011	VG_MW04_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>							
ES1405362-002	VA_MW06_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341817)</b>							
ES1405362-011	VG_MW04_0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.8	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342493)</b>							
ES1405362-011	VG_MW04_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	84.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	77.6	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>							
ES1405362-002	VA_MW06_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>							
ES1405362-002	VA_MW06_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341817)</b>							
ES1405362-011	VG_MW04_0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.0	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342493)</b>							
ES1405362-011	VG_MW04_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	65.7	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>							
ES1405362-002	VA_MW06_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.0	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>							
ES1405362-002	VA_MW06_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	52	132



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3341817)</b>								
ES1405362-011	VG_MW04_0.2	EP080: Benzene	71-43-2	2.5 mg/kg	86.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	85.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	79.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	80.4	70	130		
<b>EP080: BTEXN (QCLot: 3342511)</b>								
ES1405362-002	VA_MW06_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	85.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.8	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	75.7	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>								
ES1405362-002	VA_MW06_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.0	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	77.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	0.0125 mg/kg	86.7	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3341967)</b>							
ES1405329-007	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	93.8	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	96.1	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	92.8	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	91.2	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	87.4	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.6	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.8	70	130
		<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341936)</b>					
EB1405821-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	96.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>							
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	74.4	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	95.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>							
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70	130	
<b>EP080: BTEXN (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.4	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	106	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130	
	EP080: Naphthalene	91-20-3		25 µg/L	106	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>											
ES1405362-002	VA_MW06_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.0	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	77.1	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	86.7	----	56	138	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3341817)</b>											
ES1405362-011	VG_MW04_0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.8	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3341817)</b>											
ES1405362-011	VG_MW04_0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.0	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3341817)</b>											
ES1405362-011	VG_MW04_0.2	EP080: Benzene	71-43-2	2.5 mg/kg	86.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	85.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	79.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.2	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	80.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342493)</b>											
ES1405362-011	VG_MW04_0.2	EP071: C10 - C14 Fraction	----	640 mg/kg	84.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.0	----	53	131	----	----	





Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342493) - continued</b>											
ES1405362-011	VG_MW04_0.2	EP071: C29 - C36 Fraction	----	2860 mg/kg	77.6	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342493)</b>											
ES1405362-011	VG_MW04_0.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.5	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	65.7	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342494)</b>											
ES1405362-011	VG_MW04_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.3	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.0	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	90.9	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	100	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	30.3	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342494)</b>											
ES1405362-011	VG_MW04_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.9	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>											
ES1405362-002	VA_MW06_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>											
ES1405362-002	VA_MW06_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.0	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342511)</b>											
ES1405362-002	VA_MW06_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	85.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.8	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	75.7	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>											
ES1405362-002	VA_MW06_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.5	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>											
ES1405362-002	VA_MW06_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>											
ES1405362-004	VA_MW03_1.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.5	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>											
ES1405362-002	VA_MW06_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	----	52	132	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>										
ES1405362-002	VA_MW06_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>										
ES1405362-002	VA_MW06_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>										
ES1405362-002	VA_MW06_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343861)</b>										
ES1405194-014	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	119	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	95.9	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	90.8	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	96.5	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343862)</b>										
ES1405194-014	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	103	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3343863)</b>										
ES1405362-012	VG_MW03_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	124	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	122	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	116	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	117	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	122	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	102	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	117	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	125	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343864)</b>										
ES1405362-012	VG_MW03_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.4	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>										
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	74.4	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	95.3	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>										
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3340821)</b>										
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.6	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	99.4	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	106	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341936)</b>										
EB1405821-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	96.5	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3341967)</b>										
ES1405329-007	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	93.8	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	96.1	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	92.8	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	91.2	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	87.4	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.6	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.8	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405362</b>	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 20-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 28
Order number	: 0237747	No. of samples analysed	: 25
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0,	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	----	----	----	17-MAR-2014	25-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b>								
VA_MW06_0.2, VA_MW02_0.1,	VA_MW03_0.2, VA_SB02_0.1	11-MAR-2014	---	07-SEP-2014	----	19-MAR-2014	15-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0,	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	18-MAR-2014	07-SEP-2014	✓	18-MAR-2014	07-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b>							
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0, VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	18-MAR-2014	08-APR-2014	✓	19-MAR-2014	08-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b>							
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VA_SB03_3.0, VA_MW03_1.0, VA_SB02_0.5, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b>							
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0, VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0, VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0 VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0 VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0 VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0 VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0 VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	18-MAR-2014	18-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2, VF_MW01_4.0, VA_SB03_3.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE 2, TSC	TRIP BLANK,	10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	19-MAR-2014	24-MAR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0,	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2	VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3,	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	19-MAR-2014	25-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK		10-MAR-2014	17-MAR-2014	24-MAR-2014	✓	19-MAR-2014	24-MAR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VA_MW06_0.5, VA_MW02_0.1, VA_SB02_1.0, VF_MW03_2.0, VA_MW05_6.0, VA_MW04_2.0	VA_MW03_1.0, VA_SB02_0.5, VF_MW02_2.0, VF_MW01_4.0, VA_SB03_3.0,	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VG_MW04_0.2, VU_SB03_0.5, VN_MW07_1.8, VN_SB05_0.2	VG_MW03_0.5, VU_MW03_0.5, VN_MW06_2.3,	11-MAR-2014	17-MAR-2014	25-MAR-2014	✓	19-MAR-2014	25-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
Soil Glass Jar - Unpreserved (EP231) VA_MW06_0.5, VA_MW02_0.1,	VA_MW03_1.0, VA_SB02_0.5	11-MAR-2014	19-MAR-2014	07-SEP-2014	✓	19-MAR-2014	28-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_110314_GP		11-MAR-2014	17-MAR-2014	07-SEP-2014	✓	17-MAR-2014	07-SEP-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_110314_GP	11-MAR-2014	----	----	----	17-MAR-2014	08-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Amber Glass Bottle - Unpreserved (EP066) R01_110314_GP	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_110314_GP	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP074D: Fumigants</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_110314_GP	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_110314_GP	11-MAR-2014	17-MAR-2014	18-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓

Page : 8 of 13  
 Work Order : ES1405362  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R01_110314_GP	11-MAR-2014	18-MAR-2014	25-MAR-2014	✓	18-MAR-2014	25-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	28	10.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	30	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.





Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG005T: Total Metals by ICP-AES	ES1405194-014	Anonymous	Chromium	7440-47-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	3992514-007	----	2-Nitrophenol	88-75-5	61.6 %	62.7-117%	Recovery less than lower control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1405362</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 4
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: GAVIN POWELL		

#### Dates

Date Samples Received	: 12-MAR-2014	Issue Date	: 14-MAR-2014 17:30
Client Requested Due Date	: 20-MAR-2014	Scheduled Reporting Date	: <b>20-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 7.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 28
Security Seal	: Intact.	No. of samples analysed	: 25

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EA200N	Asbestos Quantitation by WAINPEM	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP080	BTEXN	SOIL - EP231	Perfluorooctyl Acids and Sulfonates	SOIL - S-02	8 Metals (incl. Digestion)	SOIL - S-03	15 Metals (NEPM 2013 Suite - incl.
ES1405362-001	11-MAR-2014 15:00	VA_MW06_0.2			✓													
ES1405362-002	11-MAR-2014 15:00	VA_MW06_0.5				✓	✓						✓	✓				
ES1405362-003	11-MAR-2014 15:00	VA_MW03_0.2			✓													
ES1405362-004	11-MAR-2014 15:00	VA_MW03_1.0				✓	✓						✓	✓				
ES1405362-005	11-MAR-2014 15:00	VA_MW02_0.1			✓	✓	✓						✓	✓				
ES1405362-006	11-MAR-2014 15:00	VA_SB02_0.1			✓													
ES1405362-007	11-MAR-2014 15:00	VA_SB02_0.5				✓	✓						✓	✓				
ES1405362-008	11-MAR-2014 15:00	VA_SB02_1.0				✓	✓							✓				
ES1405362-010	11-MAR-2014 15:00	VF_MW02_2.0						✓						✓				
ES1405362-011	11-MAR-2014 15:00	VG_MW04_0.2												✓				
ES1405362-012	11-MAR-2014 15:00	VG_MW03_0.5												✓				
ES1405362-013	11-MAR-2014 15:00	VQ_SB10_0.2	✓															
ES1405362-014	11-MAR-2014 15:00	VU_SB03_0.5												✓				
ES1405362-015	11-MAR-2014 15:00	VU_MW03_0.5												✓				
ES1405362-016	10-MAR-2014 15:00	TRIP SPIKE 2										✓						
ES1405362-018	10-MAR-2014 15:00	TSC										✓						
ES1405362-019	11-MAR-2014 15:00	VN_MW07_1.8																✓
ES1405362-020	11-MAR-2014 15:00	VN_MW07_9.0	✓															
ES1405362-021	11-MAR-2014 15:00	VN_MW06_2.3																✓
ES1405362-022	11-MAR-2014 15:00	VN_MW06_10.5	✓															
ES1405362-023	11-MAR-2014 15:00	VN_SB05_0.2																✓
ES1405362-024	11-MAR-2014 15:00	VF_MW03_2.0						✓						✓				
ES1405362-025	11-MAR-2014 15:00	VF_MW01_4.0						✓						✓				
ES1405362-026	11-MAR-2014 15:00	VA_MW05_6.0				✓	✓							✓				
ES1405362-027	11-MAR-2014 15:00	VA_SB03_3.0				✓	✓							✓				
ES1405362-028	11-MAR-2014 15:00	VA_MW04_2.0				✓	✓							✓				



Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C8-C9)/BTEXN with No. Moisture	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1405362-002	11-MAR-2014 15:00	VA_MW06_0.5		✓
ES1405362-004	11-MAR-2014 15:00	VA_MW03_1.0		✓
ES1405362-005	11-MAR-2014 15:00	VA_MW02_0.1		✓
ES1405362-007	11-MAR-2014 15:00	VA_SB02_0.5		✓
ES1405362-008	11-MAR-2014 15:00	VA_SB02_1.0		✓
ES1405362-010	11-MAR-2014 15:00	VF_MW02_2.0		✓
ES1405362-011	11-MAR-2014 15:00	VG_MW04_0.2		✓
ES1405362-012	11-MAR-2014 15:00	VG_MW03_0.5		✓
ES1405362-014	11-MAR-2014 15:00	VU_SB03_0.5		✓
ES1405362-015	11-MAR-2014 15:00	VU_MW03_0.5		✓
ES1405362-017	10-MAR-2014 15:00	TRIP BLANK	✓	
ES1405362-019	11-MAR-2014 15:00	VN_MW07_1.8		✓
ES1405362-021	11-MAR-2014 15:00	VN_MW06_2.3		✓
ES1405362-023	11-MAR-2014 15:00	VN_SB05_0.2		✓
ES1405362-024	11-MAR-2014 15:00	VF_MW03_2.0		✓
ES1405362-025	11-MAR-2014 15:00	VF_MW01_4.0		✓
ES1405362-026	11-MAR-2014 15:00	VA_MW05_6.0		✓
ES1405362-027	11-MAR-2014 15:00	VA_SB03_3.0		✓
ES1405362-028	11-MAR-2014 15:00	VA_MW04_2.0		✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-02T & metals (Total)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405362-009	11-MAR-2014 15:00	R01_110314_GP	✓	✓	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.macgen@erm.com
- AU Interpretive QC Report (Anon QCI Not Rep) ( QCI_NoAnon )	Email	symphony.macgen@erm.com
- AU QC Report (Anon QC Not Rep) - NATA ( QC_NoAnon )	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.macgen@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.macgen@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.macgen@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.macgen@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**ATS Environmental**  
**CHAIN OF CUSTODY**  
 ALS Laboratory:  
 please tick →

LABORATORY: 21 Berry Road, Pymont, NSW 1505  
 Ph: 02 8539 0500 E: als@ats.com.au  
 DELIVERABLE: 32 Spent Street, St Leonards QLD 4055  
 Ph: 07 3243 7222 E: samples.deliverable@ats.com.au  
 DELIVERABLE: 45 Calverley Drive, Clinton QLD 4680  
 Ph: 07 7471 5800 E: gregor@ats.com.au

DELIVERABLE: 78 Henson Road, Mackay QLD 4740  
 Ph: 07 4944 0177 E: mackay@ats.com.au  
 DELIVERABLE: 2-4 Vespa Road, Springvale VIC 3171  
 Ph: 03 8549 5500 E: samples.melbourne@ats.com.au  
 DELIVERABLE: 27 Sydney Road, Mackay NSW 2850  
 Ph: 02 8372 9729 E: mackay\_nsw@ats.com.au

DELIVERABLE: 6 Rose Gum Road, Westlakes NSW 2204  
 Ph: 02 4598 9438 E: samples.westlakes@ats.com.au  
 DELIVERABLE: 4/13 Casey Place, North Sydney NSW 2058  
 Ph: 02 4242 2063 E: northsydney@ats.com.au  
 DELIVERABLE: 10/104 Way Madeja, WA 6090  
 Ph: 08 9209 7555 E: samples.perth@ats.com.au

DELIVERABLE: 277-289 Woodgate Road, Smithfield NSW 2104  
 Ph: 02 8784 6555 E: samples.smithfield@ats.com.au  
 DELIVERABLE: 14-15 Dacia Court, Brisbane QLD 4818  
 Ph: 07 4786 0600 E: samples.brisbane@ats.com.au  
 DELIVERABLE: 88 Koppa Street, Wollongong NSW 2500  
 Ph: 02 4229 3725 E: perth@ats.com.au

**CLIENT:** ERM  
**OFFICE:** PYMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** Gavin Powell  
**COC emailed to ALS?** (YES / NO)  
 Email Reports to (will default to PM if no other addresses are listed): sydney@delacost.com.au  
 Email Invoice to (will default to PM if no other addresses are listed): sydney@delacost.com.au

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (list due date):  
 Non Standard or urgent TAT (list due date):

**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 683 752  
**EDD/FORMAT (or default):**  
**REINQUISHED BY:** Sam Ewing  
**DATE/TIME:** 12/3/14  
**RECEIVED BY:**  
**DATE/TIME:**


**FOR LABORATORY USE ONLY (GPO)**  
 Client Seal/Filter:  
 Field Seal/Frozen Seal/Seal present upon receipt?  
 Random Sample/Inappropriate Receipt  
 Other Comments:

**RECEIVED BY:** Helix  
**DATE/TIME:** 12/03/14

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS (refer to	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to extract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information							
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PEQS/PEFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste		Ultra Trace PAH	Ultra Trace Metals					
1	VA-MW06-0-2	11/3/14	S	B	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	VA-MW06-0-5		S	2 jars (1 no liner)	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3	VA-MW03-0-2		S	B	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4	VA-MW03-1-0		S	2 jars (1 no liner)	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	VA-MW02-0-1		S	B, 2 jars (1 no liner)	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	VA-SR02-0-1		S	B	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	VA-SR02-0-5		S	2 jars (1 no liner)	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8	VA-SR02-1-0		S	1 jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
9	VA01-110314-CP		W	AG, VCL, N	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<b>TOTAL</b>																							

**Water Containment Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Calcium Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved  
 V = VOA Vial ICI Preserved; VB = VOA Vial Sodium Disphosphate Preserved; VS = VOA Vial Sulphur Preserved; AV = Airflight Unpreserved Vial; SG = Sulphur Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulphur Preserved Plastic; H = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bag for Acid Sulphate Solids; B = Unpreserved Bag

**Environmental Division**  
 Sydney  
 Work Order  
**ES1405362**

Barcode:   
 Telephone: +61-2-8784 8565

200814



**ALS Environmental**

**CHAIN OF CUSTODY**

ALS Laboratory  
Please tick →

DAVID AIDE 21 Burna Road, Berala NSW 5105  
Ph: 02 9539 0500 E: david.aide@als.com.au

DIR: SEAN 22 Strand Street, Waterloo NSW 2124  
Ph: 02 3292 7222 E: sean@als.com.au

DIR: LINDA 10 Colonnade Drive, Cannon Hill QLD 4186  
Ph: 07 7471 5500 E: linda@als.com.au

DIR: KERRY 78 Highway Road, Mackay QLD 4740  
Ph: 07 4844 0177 E: kerry@als.com.au

DIR: ELIZABETH 2-4 Westall Road, Springvale VIC 3171  
Ph: 03 8549 9500 E: sam@els.com.au

DIR: JUDITH 27 Sydney Road, Madrigal NSW 2850  
Ph: 02 6572 6725 E: judith@als.com.au

DIR: GREG 5 Rose Gum Road, Waraback NSW 2304  
Ph: 02 4500 9433 E: greg@als.com.au

DIR: ANDREW 413 Quarry Road, North Sydney NSW 2061  
Ph: 02 4423 2063 E: andrew@als.com.au

DIR: JIM 10 Hodi Way, Manly NSW 6150  
Ph: 08 9208 7655 E: jim@als.com.au

DIR: SYDNEY 277-289 Woodcock Road, Smithfield NSW 2164  
Ph: 02 9784 8555 E: sydney@als.com.au

DIR: TOWNSVILLE 14-15 Deane Court, Toowoomba QLD 4618  
Ph: 07 4780 0500 E: toowoomba@als.com.au

DIR: WOLLONGONG 69 Kemp Street, Wollongong NSW 2500  
Ph: 02 4253 9128 E: wollongong@als.com.au

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

SITE MANAGER: JOHN EWING

SAMPLER: **Dave Brookes**

COC emailed to ALST ( YES / NO )

Email Reports to (will default to PM if no other addresses are listed): symphony.dela.coast@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.dela.coast@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TUNNAROUND REQUIREMENTS:  Standard TAT (list due date):  Non Standard or urgent TAT (list due date):

(Standard TAT may be longer for some tests e.g. Urea Trace Organics)

ALS QUOTE NO.:

CONTACT PH: 0401 776 290

SAMPLER MOBILE: 0427795671

EDD FORMAT (or default):

RELINQUISHED BY: **John Ewing**

DATE/TIME: **12/31/14**

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OR:	1	2	3	4	5	6	7

FOR LABORATORY USE ONLY (COC)

Quantity (See Invoiced)

Free Ice (Frozen) Ice Bricks present upon receipt?

Random Sample Temperature on Receipt

Other comment:

RECEIVED BY:

DATE/TIME:

ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)

Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).

Additional Information

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
10	VF_MM02_2.0	11/3/14	S				X		X		X								
11	VA_MM04_0.2		S				X		X										
12	VA_MM03_0.5		S				X		X										
13	VQ_SRB10_0.2		S	1 Bag			X		X										
14	VU_SBO3_0.5		S				X		X										
15	VU_MM03_0.5		S				X		X										
16	TRAP SPIKE 2	10/3/14	S	1X SAE															
17	TRAP BLANK	10/3/14	S	1X SAE															
18	T SC		S																
<b>TOTAL</b>																			

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CRC = Nitric Preserved CRC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic

V = VOA Vial (H) Preserved; VB = VOA Vial (S) Preserved; VS = VOA Vial (S) Preserved; AV = Airflight Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Solids; B = Unpreserved Bag.





# CHAIN OF CUSTODY

ALS Laboratory  
please tick ✓

ENT: ERM

FILE: PYRMONT

PROJECT: VALDES POINT POWER STATION

DER NUMBER: 0237747

E MANAGER: JOHN EWING

WPLER: *CHAS MANSRES*

C emailed to ALS? (YES / NO)

all Reports to (will default to PM if no other addresses are listed): symphony.dellaocas@erm.com

all Invoice to (will default to PM if no other addresses are listed): symphony.dellaocas@erm.com

MENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  Standard TAT (List due date):

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.: SY-050-14

CONTACT PH: 0401 776 290

SAMPLER MOBILE: *0439150527*

EDD FORMAT (or default):

RELINQUISHED BY: *John Ewing*

DATE/TIME: *12/3/14*

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?  Yes  No

Free Ice / frozen ice bricks present upon receipt?  Yes  No

Random Sample Temperature on Receipt:  N/A

Other comment:

RECEIVED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME:

## SAMPLE DETAILS

## CONTAINER INFORMATION

## ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)

## Additional Information

ALS USE	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions or samples requiring specific QC analysis etc.	
	VF-MW03-2.0	11/3/14	W	2 jars		2	X	X	X	X	X	X								
	VF-MW01-4.0	11/3/14	W	2 jars		2	X	X	X	X	X	X								
	VA-MW05-6.0	11/3/14	W	2 jars, 1 bag		3	X	X	X	X	X	X								
	VA-SB03-3.0	11/3/14	W	2 jars, 1 heavy bag		3	X	X	X	X	X	X								
	VA-MW04-2.0	11/3/14	W	2 jars, 1 heavy bag		3	X	X	X	X	X	X								
			S																	
			S																	
			S																	
			S																	

of Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; VAS = VOA Vial Sulfuric Preserved; VASG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Zinc Aspartate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405525</b>	Page	: 1 of 42
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: WATER AND SOIL ANALYSIS CENTRAL COAST	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: GP	No. of samples received	: 32
Site	: ----	No. of samples analysed	: 30
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	16.4	18.1	13.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Sample weight (dry)	----	0.01	g	736	----	----	----	664
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.736	----	----	----	0.664
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	7	11	4	----
Copper	7440-50-8	5	mg/kg	----	17	24	8	----
Lead	7439-92-1	5	mg/kg	----	7	8	<5	----
Nickel	7440-02-0	2	mg/kg	----	9	21	4	----
Zinc	7440-66-6	5	mg/kg	----	34	51	11	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	0.0011	0.0018	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	<0.005	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	93.1	97.7	98.6	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	98.8	91.6	89.7	----
Toluene-D8	2037-26-5	0.1	%	----	106	108	103	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	93.0	87.9	82.2	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	99.6	93.2	92.6	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW05_0.5	VC_MW05_1.0	VC_MW02_0.5	D01_120314_GP	VC_MW02_0.1
				12-MAR-2014 10:50	12-MAR-2014 10:55	12-MAR-2014 08:40	12-MAR-2014 08:40	12-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1405525-001	ES1405525-002	ES1405525-003	ES1405525-004	ES1405525-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	96.2	90.0	88.9	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	65.2	58.8	56.4	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	92.2	88.6	87.7	----
Anthracene-d10	1719-06-8	0.1	%	----	99.7	92.6	94.2	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	92.4	87.3	87.4	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	----	101	94.1	91.4	----
Toluene-D8	2037-26-5	0.1	%	----	104	105	100	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	99.1	91.8	86.8	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VC_MW02_1.0	VN_MW12_1.6	VN_SB02_3.0	D01_120314_SB	VN_SB04_3.0
				12-MAR-2014 08:45	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
				ES1405525-006	ES1405525-007	ES1405525-009	ES1405525-010	ES1405525-011
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	55	----	----	----	----
+150µm	----	1	%	50	----	----	----	----
+300µm	----	1	%	40	----	----	----	----
+425µm	----	1	%	34	----	----	----	----
+600µm	----	1	%	31	----	----	----	----
+1180µm	----	1	%	28	----	----	----	----
+2.36mm	----	1	%	26	----	----	----	----
+4.75mm	----	1	%	23	----	----	----	----
+9.5mm	----	1	%	20	----	----	----	----
+19.0mm	----	1	%	18	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.3	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	15.3	12.4	12.7	17.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	45	----	----	----	----
Sand (>75 µm)	----	1	%	29	----	----	----	----
Gravel (>2mm)	----	1	%	25	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.5	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	1.9	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.5	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	3.0	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	0.2	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	<10	10	<10	<10
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_1.0	VN_MW12_1.6	VN_SB02_3.0	D01_120314_SB	VN_SB04_3.0
				12-MAR-2014 08:45	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405525-006	ES1405525-007	ES1405525-009	ES1405525-010	ES1405525-011
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	3	10	6	4
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	----	<5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg	----	<5	<5	<5	<5
Molybdenum	7439-98-7	2	mg/kg	----	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	8	34	23	9
Zinc	7440-66-6	5	mg/kg	----	<5	<5	<5	<5
Thallium	7440-28-0	5	mg/kg	----	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.09	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_1.0	VN_MW12_1.6	VN_SB02_3.0	D01_120314_SB	VN_SB04_3.0
				12-MAR-2014 08:45	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405525-006	ES1405525-007	ES1405525-009	ES1405525-010	ES1405525-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	<50
<b>EP080: BTEXN</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_1.0	VN_MW12_1.6	VN_SB02_3.0	D01_120314_SB	VN_SB04_3.0
				12-MAR-2014 08:45	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405525-006	ES1405525-007	ES1405525-009	ES1405525-010	ES1405525-011
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	89.9	94.6	92.6	92.1
2-Chlorophenol-D4	93951-73-6	0.1	%	----	85.4	91.5	89.9	88.9
2,4,6-Tribromophenol	118-79-6	0.1	%	----	56.8	57.3	55.1	53.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	86.9	89.8	88.2	88.5
Anthracene-d10	1719-06-8	0.1	%	----	93.4	96.1	94.0	93.7
4-Terphenyl-d14	1718-51-0	0.1	%	----	86.5	88.3	86.3	86.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	88.5	84.4	87.0	93.3
Toluene-D8	2037-26-5	0.1	%	----	82.6	79.6	75.1	81.6
4-Bromofluorobenzene	460-00-4	0.1	%	----	94.2	72.8	86.8	99.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
				ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	17.7	17.4	23.0	----	11.4
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----
Asbestos Type	1332-21-4	-	--	----	----	----	-	----
Sample weight (dry)	----	0.01	g	----	----	----	658	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	0.657	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	----	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	<5
Barium	7440-39-3	10	mg/kg	<10	<10	30	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	16	8	5	----	16
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	----	----
Copper	7440-50-8	5	mg/kg	8	12	<5	----	<5
Lead	7439-92-1	5	mg/kg	6	<5	6	----	8
Manganese	7439-96-5	5	mg/kg	<5	<5	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg	26	30	6	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	8
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
Compound	CAS Number	LOR	Unit	ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	----	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	----	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
Compound	CAS Number	LOR	Unit	ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
Compound	CAS Number	LOR	Unit	ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	----	----	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
Compound	CAS Number	LOR	Unit	ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	106
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	112
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	91.4
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	91.7	89.0	91.4	----	89.5
2-Chlorophenol-D4	93951-73-6	0.1	%	90.2	84.0	88.7	----	86.8
2,4,6-Tribromophenol	118-79-6	0.1	%	74.4	71.5	68.8	----	66.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VN_MW02_3.7	VN_MW01_3.9	VN_SB01_2.3	VK_SB01_0.25	VK_SB01_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:10	12-MAR-2014 15:15
Compound	CAS Number	LOR	Unit	ES1405525-012	ES1405525-013	ES1405525-014	ES1405525-016	ES1405525-017
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.7	86.2	87.7	----	86.2
Anthracene-d10	1719-06-8	0.1	%	93.2	93.5	91.8	----	89.9
4-Terphenyl-d14	1718-51-0	0.1	%	88.3	82.4	85.2	----	84.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	81.8	87.6	79.8	----	99.6
Toluene-D8	2037-26-5	0.1	%	77.4	80.4	75.0	----	101
4-Bromofluorobenzene	460-00-4	0.1	%	83.0	90.3	76.2	----	93.9





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	70	----	----	----
+150µm	----	1	%	----	60	----	----	----
+300µm	----	1	%	----	53	----	----	----
+425µm	----	1	%	----	44	----	----	----
+600µm	----	1	%	----	36	----	----	----
+1180µm	----	1	%	----	27	----	----	----
+2.36mm	----	1	%	----	19	----	----	----
+4.75mm	----	1	%	----	13	----	----	----
+9.5mm	----	1	%	----	4	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	5.0	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.4	----	----	13.0	7.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	30	----	----	----
Sand (>75 µm)	----	1	%	----	51	----	----	----
Gravel (>2mm)	----	1	%	----	19	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----
Asbestos Type	1332-21-4	-	--	-	----	-	----	----
Sample weight (dry)	----	0.01	g	727	----	881	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.727	----	0.881	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	1.7	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.6	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.4	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	3.8	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	<0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg	7	----	----	6	4
Copper	7440-50-8	5	mg/kg	8	----	----	6	9
Lead	7439-92-1	5	mg/kg	6	----	----	10	5
Nickel	7440-02-0	2	mg/kg	3	----	----	<2	6
Zinc	7440-66-6	5	mg/kg	75	----	----	7	35
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.46	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	<5	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EP074B: Oxygenated Compounds - Continued</b>								
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<b>0.9</b>	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<b>0.9</b>	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW02_0.2	VK_MW01_0.5	VK_MW02_0.1	VK_MW02_1.0	VK_MW03_0.15
				12-MAR-2014 14:30	12-MAR-2014 14:40	12-MAR-2014 15:40	12-MAR-2014 16:00	12-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1405525-018	ES1405525-019	ES1405525-020	ES1405525-021	ES1405525-022
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	----	----	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	----	----	112	101
Toluene-D8	2037-26-5	0.1	%	113	----	----	116	101
4-Bromofluorobenzene	460-00-4	0.1	%	93.7	----	----	95.7	85.9
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.8	----	----	91.1	98.0
2-Chlorophenol-D4	93951-73-6	0.1	%	87.5	----	----	89.8	94.7
2,4,6-Tribromophenol	118-79-6	0.1	%	64.6	----	----	70.2	68.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	84.6	----	----	89.5	91.5
Anthracene-d10	1719-06-8	0.1	%	90.0	----	----	93.1	96.9
4-Terphenyl-d14	1718-51-0	0.1	%	83.9	----	----	84.4	96.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	----	----	105	95.3
Toluene-D8	2037-26-5	0.1	%	111	----	----	104	91.7
4-Bromofluorobenzene	460-00-4	0.1	%	101	----	----	97.2	87.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
				12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	6.2	----	11.2	14.1	3.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	----
Asbestos Type	1332-21-4	-	--	-	-	----	----	----
Sample weight (dry)	----	0.01	g	516	921	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.516	0.921	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	100	----	4	6	27
Copper	7440-50-8	5	mg/kg	37	----	6	14	17
Lead	7439-92-1	5	mg/kg	10	----	<5	6	5
Nickel	7440-02-0	2	mg/kg	62	----	3	2	14
Zinc	7440-66-6	5	mg/kg	103	----	13	14	43
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
				12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
				12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	<5	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
				12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	1.0	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.0	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
				12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	<0.0005	----	----
PFOA	335-67-1	0.0005	mg/kg	----	----	<0.0005	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	93.3	101	94.3
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.8	----	94.9	96.6	102
Toluene-D8	2037-26-5	0.1	%	102	----	105	111	111
4-Bromofluorobenzene	460-00-4	0.1	%	85.9	----	88.7	91.5	93.4
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.2	----	87.3	93.3	87.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VK_MW04_0.2	VC_MW04_0.4	VC_MW04_0.5	VA_MW06_1.8	VA_MW03_3.0
Client sampling date / time	12-MAR-2014 15:05	12-MAR-2014 12:00	12-MAR-2014 12:02	12-MAR-2014 10:50	12-MAR-2014 10:50

Compound	CAS Number	LOR	Unit	ES1405525-024	ES1405525-025	ES1405525-026	ES1405525-027	ES1405525-028
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	88.6	----	86.5	90.6	89.3
2.4.6-Tribromophenol	118-79-6	0.1	%	66.8	----	64.0	67.5	59.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	86.8	----	85.7	84.6	81.2
Anthracene-d10	1719-06-8	0.1	%	91.3	----	91.3	93.4	88.7
4-Terphenyl-d14	1718-51-0	0.1	%	75.0	----	81.9	88.2	82.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	96.0	----	97.7	98.2	105
Toluene-D8	2037-26-5	0.1	%	100	----	102	109	109
4-Bromofluorobenzene	460-00-4	0.1	%	91.2	----	95.0	98.4	101



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_3.0	VC_MW05_3.0	VC_MW04_3.0	----	----
				12-MAR-2014 10:50	12-MAR-2014 10:50	12-MAR-2014 10:50	----	----
Compound	CAS Number	LOR	Unit	ES1405525-029	ES1405525-030	ES1405525-031	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	18.0	19.4	13.4	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	5	7	17	----	----
Copper	7440-50-8	5	mg/kg	<5	8	5	----	----
Lead	7439-92-1	5	mg/kg	<5	5	5	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	----
Zinc	7440-66-6	5	mg/kg	<5	8	5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_3.0	VC_MW05_3.0	VC_MW04_3.0	----	----
				12-MAR-2014 10:50	12-MAR-2014 10:50	12-MAR-2014 10:50	----	----
Compound	CAS Number	LOR	Unit	ES1405525-029	ES1405525-030	ES1405525-031	----	----
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_3.0	VC_MW05_3.0	VC_MW04_3.0	----	----
				12-MAR-2014 10:50	12-MAR-2014 10:50	12-MAR-2014 10:50	----	----
Compound	CAS Number	LOR	Unit	ES1405525-029	ES1405525-030	ES1405525-031	----	----
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_3.0	VC_MW05_3.0	VC_MW04_3.0	----	----
				12-MAR-2014 10:50	12-MAR-2014 10:50	12-MAR-2014 10:50	----	----
Compound	CAS Number	LOR	Unit	ES1405525-029	ES1405525-030	ES1405525-031	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW02_3.0	VC_MW05_3.0	VC_MW04_3.0	----	----
				12-MAR-2014 10:50	12-MAR-2014 10:50	12-MAR-2014 10:50	----	----
Compound	CAS Number	LOR	Unit	ES1405525-029	ES1405525-030	ES1405525-031	----	----
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	98.7	76.3	98.7	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	97.6	95.0	92.5	----	----
Toluene-D8	2037-26-5	0.1	%	111	106	115	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.1	89.8	90.3	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	89.7	90.4	97.4	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	86.9	89.7	97.7	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	57.0	59.6	89.7	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.4	92.4	95.4	----	----
Anthracene-d10	1719-06-8	0.1	%	88.7	90.9	105	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	87.6	82.0	100	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	97.7	94.1	----	----
Toluene-D8	2037-26-5	0.1	%	108	103	112	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	97.2	96.4	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_120314_GP	R01_120314_CM	---	---	---
				12-MAR-2014 15:20	12-MAR-2014 10:50	---	---	---
Compound	CAS Number	LOR	Unit	ES1405525-015	ES1405525-032	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	---	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	---	<0.0001	---	---	---
Chromium	7440-47-3	0.001	mg/L	---	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	---	<0.001	---	---	---
Lead	7439-92-1	0.001	mg/L	---	<0.001	---	---	---
Nickel	7440-02-0	0.001	mg/L	---	<0.001	---	---	---
Zinc	7440-66-6	0.005	mg/L	---	<0.005	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	---	<0.0001	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_120314_GP	R01_120314_CM	---	---	---
				12-MAR-2014 15:20	12-MAR-2014 10:50	---	---	---
Client sampling date / time				ES1405525-015	ES1405525-032	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP074B: Oxygenated Compounds - Continued</b>								
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_120314_GP	R01_120314_CM	---	---	---
				12-MAR-2014 15:20	12-MAR-2014 10:50	---	---	---
Compound	CAS Number	LOR	Unit	ES1405525-015	ES1405525-032	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_120314_GP	R01_120314_CM	---	---	---
				12-MAR-2014 15:20	12-MAR-2014 10:50	---	---	---
Compound	CAS Number	LOR	Unit	ES1405525-015	ES1405525-032	---	---	---
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_120314_GP	R01_120314_CM	---	---	---
				12-MAR-2014 15:20	12-MAR-2014 10:50	---	---	---
Compound	CAS Number	LOR	Unit	ES1405525-015	ES1405525-032	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	---	---	---
Toluene	108-88-3	2	µg/L	<2	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	<1	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	---	---	---
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.5	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	92.9	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	100	---	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	31.8	29.8	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	60.2	54.6	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	57.5	41.9	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	73.4	63.4	---	---	---
Anthracene-d10	1719-06-8	0.1	%	80.1	71.0	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	69.9	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.4	94.2	---	---	---
Toluene-D8	2037-26-5	0.1	%	83.7	81.2	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	90.5	89.1	---	---	---



## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VC_MW05_0.5 - 12-MAR-2014 10:50	Mid orange-brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VC_MW02_0.1 - 12-MAR-2014 08:30	Mid brown clay soil with red and grey rocks plus some quartz grains with a trace of vegetation.
EA200: Description	VK_SB01_0.25 - 12-MAR-2014 15:10	Mid orange clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VK_MW02_0.2 - 12-MAR-2014 14:30	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VK_MW02_0.1 - 12-MAR-2014 15:40	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VK_MW04_0.2 - 12-MAR-2014 15:05	Mid grey sandy clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VC_MW04_0.4 - 12-MAR-2014 12:00	Mid orange clay soil with grey and red rocks plus some concrete debris with a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405525</b>	Page	: 1 of 52
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: WATER AND SOIL ANALYSIS CENTRAL COAST	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: GP	No. of samples received	: 32
Order number	: 0237747	No. of samples analysed	: 30
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3341981)</b>									
ES1405263-004	Anonymous	EA002: pH Value	----	0.1	pH Unit	3.9	3.9	0.0	0% - 20%
ES1405524-010	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	4.8	7.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3343291)</b>									
ES1405515-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	11.7	5.2	0% - 50%
ES1405524-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	13.7	9.3	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3343292)</b>									
ES1405525-007	VN_MW12_1.6	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.3	15.2	1.0	0% - 50%
ES1405525-024	VK_MW04_0.2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.2	6.7	8.3	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3342669)</b>									
ES1405361-018	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	1.9	1.7	11.1	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.1	1.0	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.4	3.2	6.7	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346483)</b>									
ES1405524-012	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	16	16	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	7	6	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
ES1405875-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	70	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346483) - continued</b>									
ES1405875-001	Anonymous	EG005T: Chromium	7440-47-3	2	mg/kg	20	19	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	19.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	13	15.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	20	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	24	21	10.2	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	64	58	10.4	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	9	7	22.8	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346932)</b>									
ES1405525-011	VN_SB04_3.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	7	58.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	9	18	65.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1405525-027	VA_MW06_1.8	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	16	16.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346932) - continued</b>									
ES1405525-027	VA_MW06_1.8	EG005T: Manganese	7439-96-5	5	mg/kg	16	18	15.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	12	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	18	27.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346484)</b>									
ES1405524-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405875-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346933)</b>									
ES1405525-011	VN_SB04_3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405525-027	VA_MW06_1.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3346754)</b>									
ES1405524-012	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.12	0.11	0.0	No Limit
ES1405527-008	Anonymous	EP003: Total Organic Carbon	----	0.02	%	2.57	2.64	2.7	0% - 20%
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3342890)</b>									
ES1405468-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405525-030	VC_MW05_3.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		ES1405362-028	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5
EP074: Isopropylbenzene	98-82-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Propylbenzene	103-65-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,3,5-Trimethylbenzene	108-67-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: sec-Butylbenzene	135-98-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,4-Trimethylbenzene	95-63-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: tert-Butylbenzene	98-06-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: p-Isopropyltoluene	99-87-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342516) - continued</b>									
ES1405524-001	Anonymous	EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405660-034	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074B: Oxygenated Compounds (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-002	Anonymous	EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405362-028	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3342512) - continued</b>									
ES1405362-028	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-002	Anonymous	EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405362-028	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-028	Anonymous	EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342516) - continued</b>									
ES1405524-015	Anonymous	EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>											
ES1405525-017	VK_SB01_0.5	EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405660-034	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
		<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342512)</b>									
		ES1405362-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342512) - continued</b>									
ES1405362-002	Anonymous	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405524-015	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405525-017	VK_SB01_0.5	EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405362-028	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074H: Naphthalene (QC Lot: 3342512)</b>									
ES1405362-002	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405362-028	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342776)</b>									
ES1405525-017	VK_SB01_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342581)</b>									
ES1405525-002	VC_MW05_1.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405525-017	VK_SB01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342919)</b>									
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342919) - continued</b>									
ES1405362-002	Anonymous	EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405362-028	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342581)</b>							
ES1405525-002	VC_MW05_1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		ES1405525-017	VK_SB01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5
EP075(SIM): Acenaphthylene	208-96-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342581) - continued</b>									
ES1405525-017	VK_SB01_0.5	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919)</b>									
ES1405362-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405362-028	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919) - continued</b>									
ES1405362-028	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342511)</b>									
ES1405362-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405362-028	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342515)</b>									
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405524-015	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342580)</b>									
ES1405525-002	VC_MW05_1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405525-017	VK_SB01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342775)</b>									
ES1405525-017	VK_SB01_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405525-013	VN_MW01_3.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342917)</b>									
ES1405362-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342917) - continued</b>										
ES1405362-028	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342511)</b>										
ES1405362-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405362-028	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342515)</b>										
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405524-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342580)</b>										
ES1405525-002	VC_MW05_1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405525-017	VK_SB01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342775)</b>										
ES1405525-017	VK_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405660-034	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342778)</b>										
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405525-013	VN_MW01_3.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342917)</b>										
ES1405362-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405362-028	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3342511)</b>										
ES1405362-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405362-028	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3342511) - continued</b>									
ES1405362-028	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342515)</b>									
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405524-015	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342775)</b>									
ES1405525-017	VK_SB01_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405660-034	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3342778) - continued</b>									
ES1405524-004	Anonymous	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405525-013	VN_MW01_3.9	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>EP231: Perfluorinated Compounds (QC Lot: 3341783)</b>									
ES1405362-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405524-012	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0083	0.0089	6.9	0% - 50%
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3349812)</b>									
ES1405885-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.008	0.009	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.015	0.0	No Limit
ES1405885-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.018	0.014	21.9	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3349447)</b>									
ES1405156-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3349447) - continued</b>									
ES1405156-001	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.014	89.6	No Limit
ME1400386-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.098	0.101	2.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.016	31.7	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3349811)</b>									
ES1405156-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3343120)</b>									
EM1402095-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM1402097-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1405397-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3340820) - continued</b>									
ES1405397-003	Anonymous	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3340820) - continued</b>									
ES1405261-001	Anonymous	EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1405397-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3340820) - continued</b>									
ES1405261-001	Anonymous	EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1405397-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	22	21	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	11	10	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3340820)</b>									
ES1405261-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1405397-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3340821)</b>									
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344805)</b>									
ES1405419-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405508-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	240	220	5.9	0% - 50%
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3340821)</b>									
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344805)</b>									
ES1405419-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405508-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	260	240	6.8	0% - 50%
<b>EP080: BTEXN (QC Lot: 3340821)</b>									
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3340821) - continued</b>									
ES1405261-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3344805)</b>									
ES1405419-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405508-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	181	176	2.4	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3342669)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346483)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	112	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	120	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	109	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	112	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	117	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	108	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	104	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	125	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	105	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	108	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	118	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	105	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	107	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	101	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	107	85	127	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932) - continued</b>									
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	104	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.0	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	118	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	74.5	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346484)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.1	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.6	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3346754)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	96.4	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342890)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	71.2	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342512)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	----	1 mg/kg	71.1	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	71.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	66.9	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	1 mg/kg	67.8	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	68.9	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	68.8	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	67.5	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	66.7	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	----	1 mg/kg	65.6	61	131	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342516)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	77.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	78.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	71.7	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	74.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	76.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	75.0	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	72.5	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	70.1	61	131	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342776)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	80.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342776) - continued</b>									
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	79.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	76.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	75.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342512)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	41.0	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	96.2	58	136	
		5	mg/kg	----	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	84.8	54	138	
		5	mg/kg	----	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	87.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074B: Oxygenated Compounds (QCLot: 3342516)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	64.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	97.7	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	75.8	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	89.3	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074B: Oxygenated Compounds (QCLot: 3342776)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	31.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	95.8	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	83.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	86.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342512)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	72.2	54	126	
<b>EP074C: Sulfonated Compounds (QCLot: 3342516)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	69.3	54	126	
<b>EP074C: Sulfonated Compounds (QCLot: 3342776)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.6	54	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3342512)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	62.7	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	77.3	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	71.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	67.5	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	72.8	66	126	
<b>EP074D: Fumigants (QCLot: 3342516)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	62.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	77.9	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	91.7	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	71.2	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	78.0	66	126	
<b>EP074D: Fumigants (QCLot: 3342776)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	70.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	82.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	80.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	75.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	51.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	68.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	81.0	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	76.1	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	74.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	76.8	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	78.2	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	53.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	77.0	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	76.9	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	66.6	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	75.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	74.4	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	82.2	65	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512) - continued</b>									
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	77.6	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	82.7	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	71.4	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	67.4	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	67.6	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	79.2	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	36.6	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	69.3	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	61.5	48	136	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	46.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	58.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	63.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	84.3	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	72.2	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	68.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	71.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	55.9	43	129	
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	71.0	62	130	
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	73.3	66	132	
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	75.1	66	132	
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	68.6	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	69.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	68.6	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	78.4	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	74.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	74.8	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	81.3	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	80.9	72	128	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516) - continued</b>									
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	69.8	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.9	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	80.6	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	83.6	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	44.9	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.0	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	74.0	48	136	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	49.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	67.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	89.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	77.7	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	77.7	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.2	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	79.5	43	129	
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	130	
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	83.4	66	132	
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	85.5	66	132	
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	76.5	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.6	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	85.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	90.8	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	86.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	139	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	55	129	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776) - continued</b>									
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	83.0	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.1	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	20.6	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	81.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	124	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	70.7	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	69.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	69.5	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	70.7	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	70.1	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	71.2	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	60.4	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	66.9	60	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	122	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	76.3	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	75.9	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	76.6	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	76.6	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	76.4	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	69.6	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	66.6	60	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	128	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	78.1	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	80.7	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	70.6	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342512)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	75.0	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	76.1	61	121	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074G: Trihalomethanes (QCLot: 3342512) - continued</b>									
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	75.5	60	126	
<b>EP074G: Trihalomethanes (QCLot: 3342516)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	72.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	81.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	83.9	60	126	
<b>EP074G: Trihalomethanes (QCLot: 3342776)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	85.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	85.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	90.0	60	126	
<b>EP074H: Naphthalene (QCLot: 3342512)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	78.4	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP074H: Naphthalene (QCLot: 3342516)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	123	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP074H: Naphthalene (QCLot: 3342776)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	81.1	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342581)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	98.2	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	102	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	104	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	74.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	103	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	90.5	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	86.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	83.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	63.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	71.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	17.2	10	57	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	106	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	110	72	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919) - continued</b>									
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	108	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	100	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	89.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	91.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	78.4	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	16.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342581)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	110	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	108	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	110	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	111	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.5	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	105	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	84.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	108	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	99.4	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	81.2	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	80.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	80.0	72.4	114	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	115	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	114	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	94.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.4	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919) - continued</b>									
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.1	71	113	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.8	71.7	113	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	97.8	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.3	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342580)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	93.6	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	110	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	119	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	94.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	84.6	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	98.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342580)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	115	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	118	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	126	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	89.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	93.2	74	138	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917) - continued</b>									
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	102	63	131	
<b>EP080: BTEXN (QCLot: 3342511)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	----	1 mg/kg	92.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.3	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	----	1 mg/kg	84.9	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	----	1 mg/kg	85.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	----	1 mg/kg	79.4	62	138	
<b>EP080: BTEXN (QCLot: 3342515)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.0	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	84.9	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	72.8	62	138	
<b>EP080: BTEXN (QCLot: 3342775)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.5	62	138	
<b>EP080: BTEXN (QCLot: 3342778)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.6	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	82.5	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	78.6	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.7	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.9	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	100	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	105	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	136	56	138	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3349812)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.9	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.9	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.2	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.7	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.5	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.8	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.0	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.0	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.5	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.1	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.8	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.5	76	118	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3349811)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.2	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	112	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3340820)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	101	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.6	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	90.6	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	93.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	92.4	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	93.9	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	90.7	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	91.2	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	90.6	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3340820)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	105	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	129	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	128	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	130	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3340820)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.6	72.8	127	
<b>EP074D: Fumigants (QCLot: 3340820)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	79.4	61	119	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3340820) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	101	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	98.9	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	103	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	107	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	85.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	92.5	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	93.8	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	97.1	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	93.4	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	104	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	101	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	74.5	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.3	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	84.5	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.9	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	112	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	100	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	110	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	121	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	111	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	100	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	97.4	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	105	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	108	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	124	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	123	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	115	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	76.7	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	103	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	93.6	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.2	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	93.9	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.3	74	120	





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820) - continued</b>								
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	95.0	72	120
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	95.8	77	117
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	79.1	60	126
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	84.9	67	125
<b>EP074G: Trihalomethanes (QCLot: 3340820)</b>								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.9	76	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	98.8	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	105	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	110	73.5	126
<b>EP074H: Naphthalene (QCLot: 3340820)</b>								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	95.3	61	125
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342325)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	35.2	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	67.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.7	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	55.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	63.0	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.5	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	66.8	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.0	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	64.6	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	65.0	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	62.8	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.5	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342325)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	63.7	58.6	119
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342325) - continued</b>								
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	67.2	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	# 62.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.9	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	66.4	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.6	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	73.4	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	71.2	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.0	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	72.5	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	71.1	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	76.0	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	77.9	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	86.8	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.1	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	66.2	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.2	75	127
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342323)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	94.7	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	89.0	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344805)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.9	75	127



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342323)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	86.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.3	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344805)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.1	75	127	
<b>EP080: BTEXN (QCLot: 3340821)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	95.0	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.9	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70	124	
<b>EP080: BTEXN (QCLot: 3344805)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.1	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	85.5	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	85.4	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	83.9	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.5	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	91.8	70	124	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346483)</b>								
ES1405524-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	112	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	110	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346483) - continued</b>							
ES1405524-012	Anonymous	EG005T: Nickel	7440-02-0	50 mg/kg	100	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>							
ES1405525-011	VN_SB04_3.0	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	104	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346484)</b>							
ES1405524-012	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.1	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>							
ES1405525-011	VN_SB04_3.0	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342890)</b>							
ES1405468-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	100	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>							
ES1405362-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>							
ES1405524-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.1	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	VK_SB01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>							
ES1405362-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>							
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	104	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	VK_SB01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342581)</b>							
ES1405525-002	VC_MW05_1.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342581) - continued</b>							
ES1405525-002	VC_MW05_1.0	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	42.0	20	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>							
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342581)</b>							
ES1405525-002	VC_MW05_1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>							
ES1405362-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>							
ES1405362-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>							
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.9	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342580)</b>							
ES1405525-002	VC_MW05_1.0	EP071: C10 - C14 Fraction	----	640 mg/kg	79.7	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	80.5	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>							
ES1405525-017	VK_SB01_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>							
ES1405362-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>							
ES1405362-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.0	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515) - continued</b>								
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342580)</b>								
ES1405525-002	VC_MW05_1.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.3	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	68.7	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>								
ES1405525-017	VK_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>								
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>								
ES1405362-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	52	132	
<b>EP080: BTEXN (QCLot: 3342511)</b>								
ES1405362-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.8	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	75.7	70	130			
<b>EP080: BTEXN (QCLot: 3342515)</b>								
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.6	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	70.8	70	130			
<b>EP080: BTEXN (QCLot: 3342775)</b>								
ES1405525-017	VK_SB01_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	70	130			



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3342778)</b>								
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>								
ES1405362-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.0	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	77.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	86.7	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3349812)</b>							
ES1405885-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	103	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.2	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.3	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	96.5	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>							
ES1405525-015	R01_120314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.1	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	98.1	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.3	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.9	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3349811)</b>							
ES1405525-032	R01_120314_CM	EG035F: Mercury	7439-97-6	0.0100 mg/L	96.2	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>							
EM1402095-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	70.7	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>							
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	74.4	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	95.3	70	130





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>								
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344805)</b>								
ES1405419-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	102	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344805)</b>								
ES1405419-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	97.1	70	130	
<b>EP080: BTEXN (QCLot: 3340821)</b>								
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.4	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	106	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	106	70	130		
<b>EP080: BTEXN (QCLot: 3344805)</b>								
ES1405419-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	77.1	70	130	
		EP080: Toluene	108-88-3	25 µg/L	92.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	93.2	70	130		

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP231: Perfluorinated Compounds (QCLot: 3341783)</b>											
ES1405362-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	74.0	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	77.1	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	86.7	----	56	138	----	----	



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342511)</b>											
ES1405362-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342511)</b>											
ES1405362-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.0	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342511)</b>											
ES1405362-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	85.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	83.8	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	75.7	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342512)</b>											
ES1405362-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.5	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342512)</b>											
ES1405362-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.6	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	70.8	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.5	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.1	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	104	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342580)</b>											
ES1405525-002	VC_MW05_1.0	EP071: C10 - C14 Fraction	----	640 mg/kg	79.7	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	80.5	----	52	132	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342580)</b>											
ES1405525-002	VC_MW05_1.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.3	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.6	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	68.7	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342581)</b>											
ES1405525-002	VC_MW05_1.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	97.9	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.6	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	42.0	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342581)</b>											
ES1405525-002	VC_MW05_1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>											
ES1405525-017	VK_SB01_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>											
ES1405525-017	VK_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342775)</b>											
ES1405525-017	VK_SB01_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	----	70	130	----	----			
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>											
ES1405525-017	VK_SB01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>											
ES1405525-017	VK_SB01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	----	70	130	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3342778) - continued</b>										
ES1405524-004	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.9	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	----	70	130	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342890)</b>										
ES1405468-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	100	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>										
ES1405362-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>										
ES1405362-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>										
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>										
ES1405362-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346483)</b>										
ES1405524-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	110	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	100	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	108	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346484)</b>										
ES1405524-012	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.1	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>										
ES1405525-011	VN_SB04_3.0	EG005T: Arsenic	7440-38-2	50 mg/kg	111	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932) - continued</b>										
ES1405525-011	VN_SB04_3.0	EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	104	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>										
ES1405525-011	VN_SB04_3.0	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3340820)</b>											
ES1405261-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	74.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	95.3	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3340820)</b>											
ES1405261-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3340821)</b>											
ES1405261-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3340821)</b>											
ES1405261-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3340821)</b>											
ES1405261-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	99.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	106	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	106	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343120)</b>											
EM1402095-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	70.7	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344805)</b>											
ES1405419-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	102	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344805)</b>											
ES1405419-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	97.1	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3344805)</b>											
ES1405419-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	77.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	92.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.0	----	70	130	----	----	



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3344805) - continued</b>										
ES1405419-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.4	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	93.2	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3349447)</b>										
ES1405525-015	R01_120314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.1	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	98.1	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.3	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.9	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3349811)</b>										
ES1405525-032	R01_120314_CM	EG035F: Mercury	7439-97-6	0.0100 mg/L	96.2	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3349812)</b>										
ES1405885-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.2	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.3	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	96.5	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405525</b>	Page	: 1 of 17
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: WATER AND SOIL ANALYSIS CENTRAL COAST	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: GP	No. of samples received	: 32
Order number	: 0237747	No. of samples analysed	: 30
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VC_MW02_1.0,	VK_MW01_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	17-MAR-2014	17-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VN_MW12_1.6, D01_120314_SB, VN_MW02_3.7, VN_SB01_2.3, VK_MW02_0.2, VK_MW03_0.15, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	----	----	----	17-MAR-2014	26-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VC_MW02_1.0,	VK_MW01_0.5	12-MAR-2014	---	08-SEP-2014	----	24-MAR-2014	17-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VC_MW02_1.0,	VK_MW01_0.5	12-MAR-2014	---	08-SEP-2014	----	24-MAR-2014	17-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VC_MW05_0.5, VK_SB01_0.25, VK_MW02_0.1, VC_MW04_0.4	VC_MW02_0.1, VK_MW02_0.2, VK_MW04_0.2,	12-MAR-2014	---	08-SEP-2014	----	25-MAR-2014	21-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VC_MW02_1.0,	VK_MW01_0.5	12-MAR-2014	18-MAR-2014	09-APR-2014	✓	18-MAR-2014	09-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0,	VC_MW02_0.5, VN_MW12_1.6, D01_120314_SB	12-MAR-2014	19-MAR-2014	08-SEP-2014	✓	19-MAR-2014	08-SEP-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VN_MW02_3.7, VN_SB01_2.3, VK_MW02_0.2, VK_MW03_0.15, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0,	12-MAR-2014	19-MAR-2014	08-SEP-2014	✓	20-MAR-2014	08-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0,	VC_MW02_0.5, VN_MW12_1.6, D01_120314_SB	12-MAR-2014	19-MAR-2014	09-APR-2014	✓	20-MAR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VN_MW02_3.7, VN_SB01_2.3, VK_MW02_0.2, VK_MW03_0.15, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0,	12-MAR-2014	19-MAR-2014	09-APR-2014	✓	21-MAR-2014	09-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VC_MW02_1.0,	VK_MW01_0.5	12-MAR-2014	19-MAR-2014	09-APR-2014	✓	21-MAR-2014	09-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VC_MW05_1.0, D01_120314_GP, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0,	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	20-MAR-2014	26-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VC_MW04_3.0	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW05_3.0	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0	VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_0.5, VK_MW03_0.15	VK_MW02_1.0	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	19-MAR-2014	19-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VC_MW04_3.0	<b>12-MAR-2014</b>	<b>17-MAR-2014</b>	26-MAR-2014	✓	<b>19-MAR-2014</b>	26-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW02_0.5, VN_MW12_1.6, D01_120314_SB, VN_MW02_3.7, VN_SB01_2.3, VK_MW02_0.2, VK_MW03_0.15, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	<b>12-MAR-2014</b>	<b>19-MAR-2014</b>	26-MAR-2014	✓	<b>20-MAR-2014</b>	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VC_MW04_3.0	<b>12-MAR-2014</b>	<b>17-MAR-2014</b>	26-MAR-2014	✓	<b>19-MAR-2014</b>	26-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VC_MW05_1.0, D01_120314_GP, VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9, VK_SB01_0.5, VK_MW02_1.0, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW02_0.5, VN_MW12_1.6, D01_120314_SB, VN_MW02_3.7, VN_SB01_2.3, VK_MW02_0.2, VK_MW03_0.15, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	<b>12-MAR-2014</b>	<b>19-MAR-2014</b>	26-MAR-2014	✓	<b>20-MAR-2014</b>	28-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0 VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB01_0.5, VK_MW03_0.15 VK_MW02_1.0	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_MW12_1.6, D01_120314_SB, VN_MW02_3.7, VN_SB01_2.3 VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VC_MW05_1.0, D01_120314_GP, VK_MW04_0.2, VA_MW06_1.8, VC_MW02_3.0, VC_MW04_3.0 VC_MW02_0.5, VK_MW02_0.2, VC_MW04_0.5, VA_MW03_3.0, VC_MW05_3.0	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB01_0.5, VK_MW03_0.15 VK_MW02_1.0	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	19-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_MW12_1.6, D01_120314_SB, VN_MW02_3.7, VN_SB01_2.3 VN_SB02_3.0, VN_SB04_3.0, VN_MW01_3.9	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP231)</b> VC_MW05_1.0, VC_MW04_0.5 VC_MW02_0.5	12-MAR-2014	19-MAR-2014	08-SEP-2014	✓	19-MAR-2014	28-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> R01_120314_CM	12-MAR-2014	---	08-SEP-2014	----	21-MAR-2014	08-SEP-2014	✓





Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_120314_GP	12-MAR-2014	20-MAR-2014	08-SEP-2014	✓	21-MAR-2014	08-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_120314_CM	12-MAR-2014	---	09-APR-2014	----	21-MAR-2014	09-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_120314_GP	12-MAR-2014	----	----	----	18-MAR-2014	09-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_120314_GP, R01_120314_CM	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	28-APR-2014	✓
<b>EP074D: Fumigants</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_120314_GP, R01_120314_CM	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_120314_GP, R01_120314_CM	12-MAR-2014	19-MAR-2014	19-MAR-2014	✓	21-MAR-2014	28-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_120314_CM	12-MAR-2014	20-MAR-2014	26-MAR-2014	✓	20-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_120314_GP	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
Amber VOC Vial - Sulfuric Acid (EP080) R01_120314_CM	12-MAR-2014	20-MAR-2014	26-MAR-2014	✓	20-MAR-2014	26-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	37	10.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	8	80	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	6	60	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	3	60	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	3	60	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	3	60	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	29	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.





Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3992522-018	----	<b>Acenaphthene</b>	83-32-9	62.2 %	62.2-113%	<b>Recovery less than lower control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405525**

<p><b>Client :</b> ENVIRO RESOURCES MANAGEMENT</p> <p><b>Contact :</b> SYMPHONY DELTANORTH</p> <p><b>Address :</b> GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p><b>Laboratory :</b> Environmental Division Sydney</p> <p><b>Contact :</b> Barbara Hanna</p> <p><b>Address :</b> 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
---	--

<p><b>E-mail :</b> Symphony.deltanorth@erm.com</p> <p><b>Telephone :</b> +61 02 8584 8888</p> <p><b>Facsimile :</b> +61 02 8584 8800</p>	<p><b>E-mail :</b> Barbara.Hanna@alsglobal.com</p> <p><b>Telephone :</b> +61 2 8784 8555</p> <p><b>Facsimile :</b> +61 2 8784 8555</p>
--	--

<p><b>Project :</b> WATER AND SOIL ANALYSIS CENTRAL COAST</p>	<p><b>Page :</b> 1 of 4</p>
---	-----------------------------

<p><b>Order number :</b> 0237747</p> <p><b>C-O-C number :</b> ----</p> <p><b>Site :</b> ----</p> <p><b>Sampler :</b> GP</p>	<p><b>Quote number :</b> ES2014ENVRES0385 (SY/050/14 V3)</p> <p><b>QC Level :</b> NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
---	--

#### Dates

<p><b>Date Samples Received :</b> 13-MAR-2014</p> <p><b>Client Requested Due Date :</b> 26-MAR-2014</p>	<p><b>Issue Date :</b> 14-MAR-2014 17:32</p> <p><b>Scheduled Reporting Date :</b> <b>26-MAR-2014</b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery :</b> Carrier</p> <p><b>No. of coolers/boxes :</b> 1 HARD</p> <p><b>Security Seal :</b> Intact.</p>	<p><b>Temperature :</b> 4.2°C - Ice present</p> <p><b>No. of samples received :</b> 32</p> <p><b>No. of samples analysed :</b> 30</p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD and ASBESTOS analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS BRISBANE**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines - SOIL - ED007 Def	CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC ) in Soil
ES1405525-001	12-MAR-2014 10:50	VC_MW05_0.5					✓			
ES1405525-005	12-MAR-2014 08:30	VC_MW02_0.1					✓			
ES1405525-006	12-MAR-2014 08:45	VC_MW02_1.0		✓		✓		✓		✓
ES1405525-007	12-MAR-2014 15:00	VN_MW12_1.6							✓	
ES1405525-008	12-MAR-2014 15:00	VN_MW12_5.8	✓							
ES1405525-009	12-MAR-2014 15:00	VN_SB02_3.0							✓	
ES1405525-010	12-MAR-2014 15:00	D01_120314_SB							✓	
ES1405525-011	12-MAR-2014 15:00	VN_SB04_3.0							✓	
ES1405525-012	12-MAR-2014 15:00	VN_MW02_3.7							✓	
ES1405525-013	12-MAR-2014 15:00	VN_MW01_3.9							✓	
ES1405525-014	12-MAR-2014 15:00	VN_SB01_2.3							✓	
ES1405525-016	12-MAR-2014 15:10	VK_SB01_0.25					✓			
ES1405525-018	12-MAR-2014 14:30	VK_MW02_0.1_0.2					✓			
ES1405525-019	12-MAR-2014 14:40	VK_MW01_0.5		✓		✓		✓		✓
ES1405525-020	12-MAR-2014 15:40	VK_MW02_0.1					✓			
ES1405525-023	12-MAR-2014 15:50	VK_MW03_1.55	✓							
ES1405525-024	12-MAR-2014 15:05	VK_MW04_0.2					✓			
ES1405525-025	12-MAR-2014 12:00	VC_MW04_0.4					✓			
ES1405525-027	12-MAR-2014 10:50	VA_MW06_1.8			✓					
ES1405525-028	12-MAR-2014 10:50	VA_MW03_3.0			✓					
ES1405525-029	12-MAR-2014 10:50	VC_MW02_3.0			✓					
ES1405525-030	12-MAR-2014 10:50	VC_MW05_3.0			✓					
ES1405525-031	12-MAR-2014 10:50	VC_MW04_3.0			✓					



Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite -incl. Digestion)	SOIL - S-24 TRH/BTEX/NPAH + Phenols	SOIL - S-27 TRH/BTEX/NPAH/Phenols/8Metals
ES1405525-002	12-MAR-2014 10:55	VC_MW05_1.0	✓	✓	✓			✓
ES1405525-003	12-MAR-2014 08:40	VC_MW02_0.5	✓	✓	✓			✓
ES1405525-004	12-MAR-2014 08:40	D01_120314_GP	✓	✓				✓
ES1405525-007	12-MAR-2014 15:00	VN_MW12_1.6				✓	✓	
ES1405525-009	12-MAR-2014 15:00	VN_SB02_3.0				✓	✓	
ES1405525-010	12-MAR-2014 15:00	D01_120314_SB				✓	✓	
ES1405525-011	12-MAR-2014 15:00	VN_SB04_3.0				✓	✓	
ES1405525-012	12-MAR-2014 15:00	VN_MW02_3.7				✓	✓	
ES1405525-013	12-MAR-2014 15:00	VN_MW01_3.9				✓	✓	
ES1405525-014	12-MAR-2014 15:00	VN_SB01_2.3				✓	✓	
ES1405525-017	12-MAR-2014 15:15	VK_SB01_0.5		✓				✓
ES1405525-018	12-MAR-2014 14:30	VK_MW02_0.1_0.2		✓				✓
ES1405525-021	12-MAR-2014 16:00	VK_MW02_1.0		✓				✓
ES1405525-022	12-MAR-2014 15:45	VK_MW03_0.15		✓				✓
ES1405525-024	12-MAR-2014 15:05	VK_MW04_0.2		✓				✓
ES1405525-026	12-MAR-2014 12:02	VC_MW04_0.5	✓	✓	✓			✓
ES1405525-027	12-MAR-2014 10:50	VA_MW06_1.8	✓	✓				✓
ES1405525-028	12-MAR-2014 10:50	VA_MW03_3.0	✓	✓				✓
ES1405525-029	12-MAR-2014 10:50	VC_MW02_3.0	✓	✓				✓
ES1405525-030	12-MAR-2014 10:50	VC_MW05_3.0	✓	✓				✓
ES1405525-031	12-MAR-2014 10:50	VC_MW04_3.0	✓	✓				✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-27 TRH/BTEX/NPAH/Phenols/8 Metals	WATER - W-27T TRH/BTEX/NPAH/Phenols/Total 8 Metals
ES1405525-015	12-MAR-2014 15:20	R01_120314_GP	✓		✓
ES1405525-032	12-MAR-2014 10:50	R01_120314_CM		✓	

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTab )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------













**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**ENT:** ERM  
**ICE:** PYRMONT  
**SUBJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**MANAGER:** JOHN EWING  
**CONTACT PH:** 0401 776 290  
**IPLER:** CHRIS MASTERS  
**SAMPLER MOBILE:** 0439130527  
**EDD FORMAT (or default):**  
 emailed to ALS? ( YES / NO)  
 Reports to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com  
 Invoice to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:** SY-080-14

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal Intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comment:

**RECEIVED BY:** [Signature]  
**DATE/TIME:** 13/3/14

LS SE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price). Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below) (refer to TOTAL CONTAINERS)	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD sieve / TOC Lec	EC Saturated Paste		Ultra Trace PAH
39	VA-MW06-1.8	12/3/14	S	2 jars 1 bag	3	X	X	X	X	X						
40	VA-MW03-3.0	12/3/14	S	2 jars 1 bag	3	X	X	X	X	X						
41	VC-MW02-3.0	12/3/14	S	2 jars 1 bag	3	X	X	X	X	X						
42	VC-MW05-3.0	12/3/14	S	2 jars (bag)	3	X	X	X	X	X						
43	VC-MW04-3.0	12/3/14	S	2 jars (bag)	3	X	X	X	X	X						
44	120314-CM	12/3/14	W		3	X	X	X	X	X						
			S													
			S													
			S													
			S													
			S													

Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/CD Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; CA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; It = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Inc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid/Sulphate Solids; B = Unpreserved Bag.











**CHAIN OF CUSTODY**  
**Environmental**  
 ALS Laboratory  
 please tick →

DADELADE 21 Europe Road, Porters SA 5098  
 Ph: 08 8393 0650 E: ade@als.com.au  
 DORSETSALE 32 Sherar Street, Stirling QLD 4053  
 Ph: 07 5245 7222 E: sarah@als.com.au  
 C/O 5210 Eneabba Cammeroon Drive, Clinton QLD 4680  
 Ph: 07 4171 5005 E: gordon@als.com.au

DADELADE 73 Harbour Road, Mackay, QLD 4240  
 Ph: 07 4544 0777 E: mackay@als.com.au  
 DME/BOURNE 24 Wessell Road, Springside VIC 3171  
 Ph: 03 9549 5000 E: sam@als.com.au  
 DML/DCEE 21 Sydney Road, Madrigal NSW 2860  
 Ph: 02 6372 6735 E: madrigal@als.com.au

DNEWCASTLE 3 Rose Gum Road, Warbrook NSW 2304  
 Ph: 02 4909 9433 E: newcastle@als.com.au  
 DNOWRA 413 Geary Place, Nowra NSW 2541  
 Ph: 02 4423 2063 E: nowra@als.com.au  
 DPERTH 110 Wood Way, Midvale WA 6150  
 Ph: 08 9203 7655 E: perth@als.com.au

US/DAVEY 277-280 Woodbank Road, Smithfield NSW 2104  
 Ph: 02 8794 8555 E: smithfield@als.com.au  
 DTONNSVILLE 14-15 Deane Court, Bohle QLD 4518  
 Ph: 07 4736 0800 E: tonnsville@als.com.au  
 DWA/OI LONGGANG 56 Kenny Street, Wollongong NSW 2500  
 Ph: 02 4226 3125 E: wollongong@als.com.au

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** (Kevin Powell)  
**COC emailed to ALS?** YES /  NO  
**EDD FORMAT (or default):**  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delaocast@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.delaocast@erm.com  
**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date)  
 Non Standard or urgent TAT (List due date):

**RECEIVED BY:** [Signature] DATE/TIME: 13/3/14 16:00  
**RECEIVED BY:** [Signature] DATE/TIME: 13/3/14 16:00

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	CONTAINER INFORMATION	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED including SITES (NB: Site Codes must be listed to attract site price)											Additional Information
							8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	
1	VC-MMA05-0.5	12/3/14 10:50	S	B	B	1	X	X	X	X	X	X	X	X	X	X		
2	VC-MMA05-1.0	10:55	S	B	2	X	X	X	X	X	X	X	X	X	X	X		
3	VC-MMA02-0.5	08:40	S	B	2	X	X	X	X	X	X	X	X	X	X	X		
4	DD01_120314_CP	08:40	S	B	2	X	X	X	X	X	X	X	X	X	X	X		
5	VC-MMA02-0.1	08:30	S	B	1	X	X	X	X	X	X	X	X	X	X	X		
6	VC-MMA02-1.0	08:45	S	B	2	X	X	X	X	X	X	X	X	X	X	X		
<b>TOTAL</b>																		

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airflight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; NV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldelyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

**Environmental Division**  
**Sydney**  
**Work Order**  
**ES1405525**  
 Telephone : + 61-2-8784 8555







# Certificate of Analysis

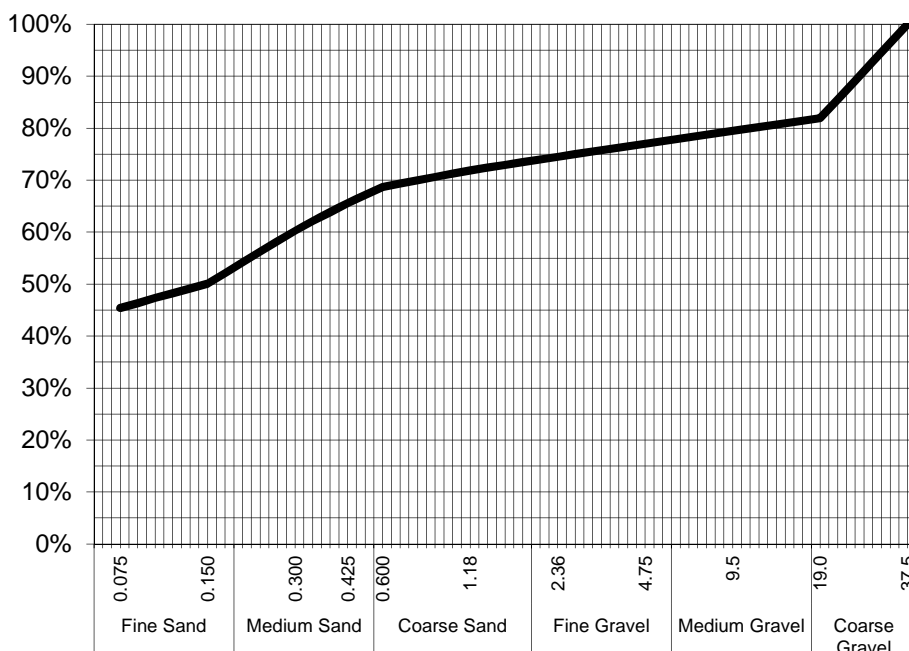
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor      **REPORT NO:** ES1405525-006 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Water And Soil Analysis Central      **SAMPLE ID:** VC\_MW02\_1.0  
 Coast

## Particle Size Distribution



Particle Size (mm)	Percent Passing
37.5	100%
19.0	82%
9.5	80%
4.75	77%
2.36	75%
1.18	72%
0.600	69%
0.425	66%
0.300	60%
0.150	50%
0.075	45%

Samples analysed as received.

## Sample Comments:

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



# Certificate of Analysis

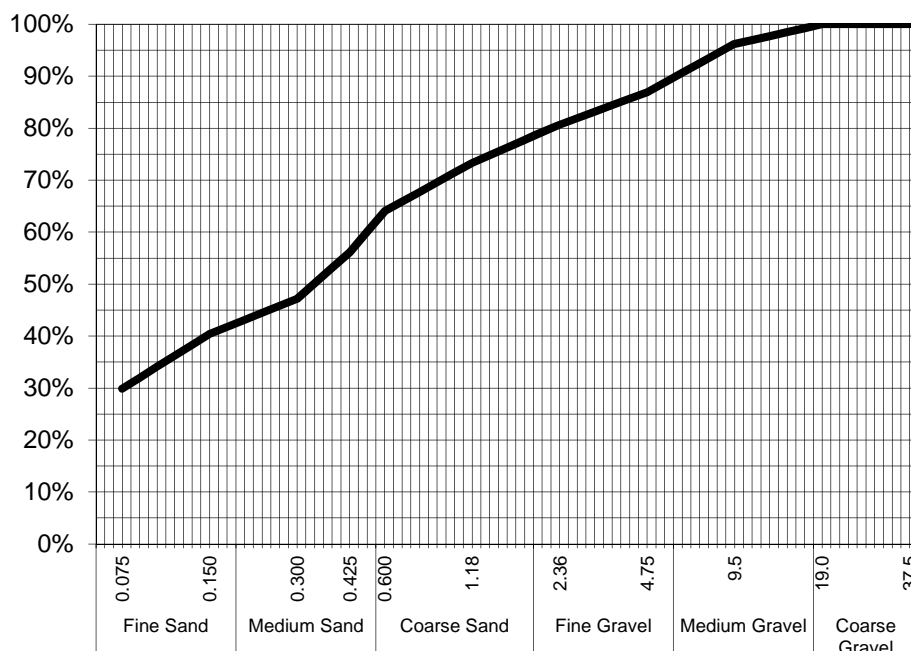
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** Symphony Deltanorth      **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor      **REPORT NO:** ES1405525-019 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Water And Soil Analysis Central      **SAMPLE ID:** VK\_MW01\_0.5  
 Coast

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	96%
4.75	87%
2.36	81%
1.18	73%
0.600	64%
0.425	56%
0.300	47%
0.150	40%
0.075	30%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand, fines and gravel

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405526</b>	Page	: 1 of 22
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: DANE BROOKES	No. of samples received	: 17
Site	: ----	No. of samples analysed	: 17
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	10.7	----	11.6	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	421	----	574	----	527
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.421	----	0.574	----	0.527
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	8	----	6	----
Copper	7440-50-8	5	mg/kg	----	12	----	15	----
Lead	7439-92-1	5	mg/kg	----	8	----	7	----
Nickel	7440-02-0	2	mg/kg	----	10	----	13	----
Zinc	7440-66-6	5	mg/kg	----	31	----	53	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	72.4	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	100	----	87.0	----
Toluene-D8	2037-26-5	0.1	%	----	110	----	88.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	88.7	----	80.2	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	90.4	----	91.1	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	89.5	----	90.4	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	80.7	----	68.0	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	87.2	----	83.5	----
Anthracene-d10	1719-06-8	0.1	%	----	92.4	----	94.2	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VB_MW03_0.2	VB_MW03_0.5	VD_MW04_0.2	VD_MW04_0.5	VD_MW01_0.3
Client sampling date / time	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1405526-001	ES1405526-002	ES1405526-003	ES1405526-004	ES1405526-005
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
4-Terphenyl-d14	1718-51-0	0.1	%	----	86.4	----	76.7	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	102	----	88.2	----
Toluene-D8	2037-26-5	0.1	%	----	108	----	86.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	96.6	----	86.6	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.0	----	21.1	----	15.1
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	No	----
Asbestos Type	1332-21-4	-	--	----	-	----	-	----
Sample weight (dry)	----	0.01	g	----	497	----	597	----
APPROVED IDENTIFIER:	----	-	--	----	C.OWLER	----	C.OWLER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.497	----	0.597	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	No	----	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	----	<5
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	<1
Chromium	7440-47-3	2	mg/kg	6	----	6	----	6
Copper	7440-50-8	5	mg/kg	<5	----	<5	----	12
Lead	7439-92-1	5	mg/kg	<5	----	<5	----	<5
Nickel	7440-02-0	2	mg/kg	<2	----	<2	----	<2
Zinc	7440-66-6	5	mg/kg	<5	----	5	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	----	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	----	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	----	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	<5	----	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	----	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.9	----	93.0	----	98.4
Toluene-D8	2037-26-5	0.1	%	92.4	----	111	----	107
4-Bromofluorobenzene	460-00-4	0.1	%	80.4	----	93.5	----	90.9
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	90.2	----	88.3	----	93.0
2-Chlorophenol-D4	93951-73-6	0.1	%	89.8	----	92.7	----	90.9
2,4,6-Tribromophenol	118-79-6	0.1	%	90.7	----	62.4	----	71.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	96.2	----	89.5	----	87.8
Anthracene-d10	1719-06-8	0.1	%	95.4	----	94.9	----	95.6
4-Terphenyl-d14	1718-51-0	0.1	%	88.8	----	88.8	----	87.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.4	----	95.9	----	101
Toluene-D8	2037-26-5	0.1	%	90.2	----	108	----	104



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW01_0.5	VD_MW02_0.2	VD_MW02_0.5	VD_SB02_0.2	VD_SB02_0.5
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-006	ES1405526-007	ES1405526-008	ES1405526-009	ES1405526-010
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	84.6	----	99.6	----	98.4





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	16.4	----	19.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----
Asbestos Type	1332-21-4	-	--	-	----	-	----	----
Sample weight (dry)	----	0.01	g	449	----	296	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.449	----	0.296	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	8	----	<2	----
Copper	7440-50-8	5	mg/kg	----	8	----	<5	----
Lead	7439-92-1	5	mg/kg	----	<5	----	<5	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	<5	----	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	1.2	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	98.2	----	86.4	----
Toluene-D8	2037-26-5	0.1	%	----	124	----	95.7	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	99.0	----	80.6	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	91.1	----	94.0	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	89.5	----	92.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	61.6	----	68.0	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	87.8	----	88.6	----
Anthracene-d10	1719-06-8	0.1	%	----	95.6	----	95.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	77.9	----	89.3	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW03_0.3	VD_MW03_0.5	VD_SB01_0.3	VD_SB01_0.5	TRIP BLANK
				12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00	12-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405526-011	ES1405526-012	ES1405526-013	ES1405526-014	ES1405526-015
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	99.9	----	87.3	100
Toluene-D8	2037-26-5	0.1	%	----	120	----	93.2	88.9
4-Bromofluorobenzene	460-00-4	0.1	%	----	108	----	86.3	97.0



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				TRIP SPIKE	TSC	---	---	---
				12-MAR-2014 15:00	12-MAR-2014 15:00	---	---	---
				ES1405526-016	ES1405526-017	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	10	mg/kg	69	69	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	75	75	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	44	43	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.6	0.6	---	---	---
Toluene	108-88-3	0.5	mg/kg	17.2	17.3	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	1.8	1.8	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	8.3	8.5	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	3.4	3.6	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	31.3	31.8	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	11.7	12.1	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	111	---	---	---
Toluene-D8	2037-26-5	0.1	%	82.4	95.1	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	90.4	101	---	---	---

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VB_MW03_0.2 - 12-MAR-2014 15:00	Pale brown sandy soil with some slag grains plus a trace of vegetation
EA200: Description	VD_MW04_0.2 - 12-MAR-2014 15:00	Pale brown sandy soil with a trace of vegetation
EA200: Description	VD_MW01_0.3 - 12-MAR-2014 15:00	Pale brown sandy soil with a trace of vegetation
EA200: Description	VD_MW02_0.2 - 12-MAR-2014 15:00	Pale brown soil with some red rocks plus some quartz grains and a trace of vegetation
EA200: Description	VD_SB02_0.2 - 12-MAR-2014 15:00	Pale brown sandy soil with a trace of vegetation
EA200: Description	VD_MW03_0.3 - 12-MAR-2014 15:00	Pale brown sandy soil with with some grey rocks plus a trace of vegetation
EA200: Description	VD_SB01_0.3 - 12-MAR-2014 15:00	Pale brown sandy soil with with some grey rocks plus a trace of vegetation





## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405526</b>	Page	: 1 of 19
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: DANE BROOKES	No. of samples received	: 17
Order number	: 0237747	No. of samples analysed	: 17
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3343293)</b>									
ES1405526-006	VD_MW01_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.0	15.0	6.6	0% - 50%
ES1405546-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.2	23.3	0.6	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346932)</b>									
ES1405525-011	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	7	58.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405525-027	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	16	16.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	18	27.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3346934)</b>									
ES1405526-012	VD_MW03_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	9	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405588-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	23	23	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346933)</b>									
ES1405525-011	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405525-027	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346935)</b>									
ES1405526-012	VD_MW03_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405588-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3342882)</b>									
ES1405362-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405524-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3342516) - continued</b>									
ES1405524-001	Anonymous	EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1405524-015	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342516) - continued</b>									
ES1405524-015	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342516)</b>									
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405524-015	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342516) - continued</b>											
ES1405524-015	Anonymous	EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405524-015	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074H: Naphthalene (QC Lot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
ES1405524-015	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342774)</b>											
ES1405524-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1405524-013	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit				



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342774) - continued</b>									
ES1405524-013	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342774)</b>									
ES1405524-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405524-013	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342515)</b>										
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405524-015	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342773)</b>										
ES1405524-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405524-013	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342778)</b>										
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405525-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342515)</b>										
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405524-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342773)</b>										
ES1405524-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405524-013	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342778)</b>										
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405525-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3342515)</b>										
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405524-015	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3342515) - continued</b>									
ES1405524-015	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342778)</b>									
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405525-013	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	105	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	101	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	108	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346934)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	126	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	117	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	116	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	124	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	112	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	119	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	119	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.6	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346935)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.1	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.3	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342516)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	77.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	78.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	71.7	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	74.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	76.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	75.0	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	72.5	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	70.1	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342516)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	64.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3342516) - continued</b>									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	97.7	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	75.8	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	89.3	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342516)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	69.3	54	126	
<b>EP074D: Fumigants (QCLot: 3342516)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	62.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	77.9	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	91.7	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	71.2	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	78.0	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	46.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	58.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	63.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	84.3	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	72.2	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	68.9	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	71.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	55.9	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	71.0	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	73.3	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	75.1	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	68.6	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	69.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	68.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	78.4	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	74.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	74.8	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	81.3	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516) - continued</b>									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	80.9	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	77.4	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	69.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	80.6	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	83.6	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	44.9	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.0	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	74.0	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	122	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	76.3	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	75.9	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	76.6	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	76.6	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	76.4	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	69.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	66.6	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342516)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	72.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	81.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	83.9	60	126	
<b>EP074H: Naphthalene (QCLot: 3342516)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	123	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342774)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	102	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	106	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	104	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	98.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.9	76.4	114	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342774) - continued</b>									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	90.5	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	89.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	39.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342774)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	109	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	111	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	113	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	120	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	99.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	106	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	86.1	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	101	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	80.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	88.0	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.3	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342773)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	95.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	89.3	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	80.4	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	119	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342773)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	88.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	88.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	67.0	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	126	68.4	128	
<b>EP080: BTEXN (QCLot: 3342515)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)		
					Concentration	LCS	Low	High
<b>EP080: BTEXN (QCLot: 3342515) - continued</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.0	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.8	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	84.9	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	72.8	62	138
<b>EP080: BTEXN (QCLot: 3342778)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.4	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	82.5	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	78.6	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	82.7	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.9	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>							
ES1405525-011	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346934)</b>							
ES1405526-012	VD_MW03_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	108	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>							
ES1405525-011	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346935)</b>							
ES1405526-012	VD_MW03_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.9	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>							
ES1405362-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>							
ES1405524-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.1	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>							
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	104	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342774)</b>							
ES1405524-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	110	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	118	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	94.7	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	103	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.2	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342774)</b>							
ES1405524-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	122	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>							
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.9	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342773)</b>							
ES1405524-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	75.1	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	84.4	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>							
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342773)</b>							
ES1405524-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.7	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.2	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>							
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3342515)</b>								
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.6	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	70.8	70	130		
<b>EP080: BTEXN (QCLot: 3342778)</b>								
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342515)</b>											
ES1405524-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	87.0	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.6	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	70.8	----	70	130	----	----		
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.5	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.1	----	70	130	----	----	



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342516)</b>											
ES1405524-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	104	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342773)</b>											
ES1405524-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	75.1	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	84.4	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342773)</b>											
ES1405524-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.9	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.7	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	55.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342774)</b>											
ES1405524-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	110	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	118	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	94.7	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	103	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	38.2	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342774)</b>											
ES1405524-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	122	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.1	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342778)</b>											
ES1405524-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.4	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.9	----	70	130	----	----	
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	79.4	----	70	130	----	----	
		EP080: Naphthalene	95-47-6	2.5 mg/kg	79.4	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	----	70	130	----	----			
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3342882)</b>											
ES1405362-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.5	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932)</b>											
ES1405525-011	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346932) - continued</b>										
ES1405525-011	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346933)</b>										
ES1405525-011	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3346934)</b>										
ES1405526-012	VD_MW03_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	116	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346935)</b>										
ES1405526-012	VD_MW03_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.9	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405526</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 13-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: DANE BROOKES	No. of samples received	: 17
Order number	: 0237747	No. of samples analysed	: 17
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	----	----	----	17-MAR-2014	26-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VB_MW03_0.2, VD_MW04_0.2, VD_MW01_0.3, VD_MW02_0.2, VD_SB02_0.2, VD_MW03_0.3, VD_SB01_0.3	12-MAR-2014	---	08-SEP-2014	----	24-MAR-2014	20-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	19-MAR-2014	08-SEP-2014	✓	20-MAR-2014	08-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	19-MAR-2014	09-APR-2014	✓	21-MAR-2014	09-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_MW03_0.5	12-MAR-2014	18-MAR-2014	26-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW01_0.5, VD_SB02_0.5, VD_SB01_0.5	VD_MW04_0.5, VD_MW02_0.5, VD_MW03_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	17-MAR-2014	19-MAR-2014	✓	18-MAR-2014	19-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	19-MAR-2014	26-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP BLANK, TSC	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VB_MW03_0.5, VD_MW04_0.5, VD_MW01_0.5, VD_MW02_0.5, VD_SB02_0.5, VD_MW03_0.5, VD_SB01_0.5	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	18-MAR-2014	26-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP SPIKE, TSC	12-MAR-2014	17-MAR-2014	26-MAR-2014	✓	21-MAR-2014	26-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Page : 7 of 8  
Work Order : ES1405526  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order** : **ES1405526**

**Client** : **ENVIRO RESOURCES MANAGEMENT**      **Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING      **Contact** : Barbara Hanna  
**Address** : GROUND FLOOR      **Address** : 277-289 Woodpark Road Smithfield  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail** : john.ewing@erm.com      **E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 02 8584 8888      **Telephone** : +61 2 8784 8555  
**Facsimile** : +61 02 8584 8800      **Facsimile** : +61 2 8784 8555

**Project** : VALES POINT POWER STATION      **Page** : 1 of 3  
**Order number** : 0237747  
**C-O-C number** : ----      **Quote number** : ES2014ENVRES0385 (SY/050/14 V3)  
**Site** : ----  
**Sampler** : DANE BROOKES      **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

**Date Samples Received** : 13-MAR-2014      **Issue Date** : 15-MAR-2014 12:09  
**Client Requested Due Date** : 24-MAR-2014      **Scheduled Reporting Date** : **24-MAR-2014**

**Delivery Details**

**Mode of Delivery** : Carrier      **Temperature** : 4.2°C - Ice present  
**No. of coolers/boxes** : 1 HARD      **No. of samples received** : 17  
**Security Seal** : Intact.      **No. of samples analysed** : 17

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1405526-001	12-MAR-2014 15:00	VB_MW03_0.2	✓					
ES1405526-002	12-MAR-2014 15:00	VB_MW03_0.5		✓	✓			✓
ES1405526-003	12-MAR-2014 15:00	VD_MW04_0.2	✓					
ES1405526-004	12-MAR-2014 15:00	VD_MW04_0.5			✓			✓
ES1405526-005	12-MAR-2014 15:00	VD_MW01_0.3	✓					
ES1405526-006	12-MAR-2014 15:00	VD_MW01_0.5			✓			✓
ES1405526-007	12-MAR-2014 15:00	VD_MW02_0.2	✓					
ES1405526-008	12-MAR-2014 15:00	VD_MW02_0.5			✓			✓
ES1405526-009	12-MAR-2014 15:00	VD_SB02_0.2	✓					
ES1405526-010	12-MAR-2014 15:00	VD_SB02_0.5			✓			✓
ES1405526-011	12-MAR-2014 15:00	VD_MW03_0.3	✓					
ES1405526-012	12-MAR-2014 15:00	VD_MW03_0.5			✓			✓
ES1405526-013	12-MAR-2014 15:00	VD_SB01_0.3	✓					
ES1405526-014	12-MAR-2014 15:00	VD_SB01_0.5			✓			✓
ES1405526-015	12-MAR-2014 15:00	TRIP BLANK				✓		
ES1405526-016	12-MAR-2014 15:00	TRIP SPIKE					✓	
ES1405526-017	12-MAR-2014 15:00	TSC					✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





**CHAIN OF CUSTODY**

DADELAIDE 21 Duma Road, Pecook SA 5095  
Ph: 08 8559 0900 E: adelaide@alsglobal.com  
DROBESANE 33 Sand Street, Stirling QLD 4063  
Ph: 07 3243 7222 E: drobesane@alsglobal.com  
EDLACSTONE 48 Callanburgh Drive, Glenon QLD 4690  
Ph: 07 7471 5800 E: edlstone@alsglobal.com

DMACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: dmackay@alsglobal.com  
ENGLISBORNE 2-4 Westall Road, Springvale VIC 3171  
Ph: 03 9549 9600 E: englisborne@alsglobal.com  
DUNDEE 27 Spynie Road, Dundee NSW 2866  
Ph: 02 8272 9735 E: mudgee@mail@alsglobal.com

DNEWCASTLE 5 Ross Curn Road, Newcastle NSW 2304  
Ph: 02 4963 8463 E: samples.newcastle@alsglobal.com  
DROBORA 413 Geery Place, North Nowra NSW 2541  
Ph: 02423 2063 E: nowra@alsglobal.com  
DPERTH 10 Hot Way Malaga WA 6060  
Ph: 08 9209 7650 E: samples.perth@alsglobal.com

DISUNSWY 277-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8761 8626 E: samples.unswy@alsglobal.com  
DTCOWNSVILLE 14-16 Deama Court, Bowle QLD 4818  
Ph: 07 4759 0500 E: townsville.environmental@alsglobal.com  
DWOOLONGONG 58 Kenny Street, Wollongong NSW 2500  
Ph: 02 4226 3123 E: portlamb@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:**  
COC emailed to ALS? ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT may be longer for some tests e.g. Ultra Trace Organics  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**FOR LABORATORY USE ONLY (Grids)**  
 Cavity Seal Integrity: Yes No  
 Free Leachables Present (on receipt): Yes No  
 Random Sample Temperature on Receipt: Yes No  
 On-site Storage: Yes No

**RECEIVED BY:** John Ewing  
**DATE/TIME:** 13/3/14

**RELINQUISHED BY:**  
**DATE/TIME:**

**RECEIVED BY:**  
**DATE/TIME:**

**RECEIVED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH	PHENOLS (S-24)	ASBESTOS	VOC	PCB	FOS/PFOA	PH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
12	VD_MW03-0.5	12/3/14	S	1 Jar		X		X			X								
13	VD-SB01-0.3	↓	S	1 Bag						X									
14	VD-SB01-0.5		S	1 Jar		X		X			X								
15	Trip Blank		S		1		X												BTEX only
16	Trip Spike		S		1		X												BTEX, TPH
17	TSC		S																
<b>TOTAL</b>																			

**ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).**

**CONTAINER INFORMATION**

**WATER CONTAINER CODES:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

1092

# Certificate of Analysis

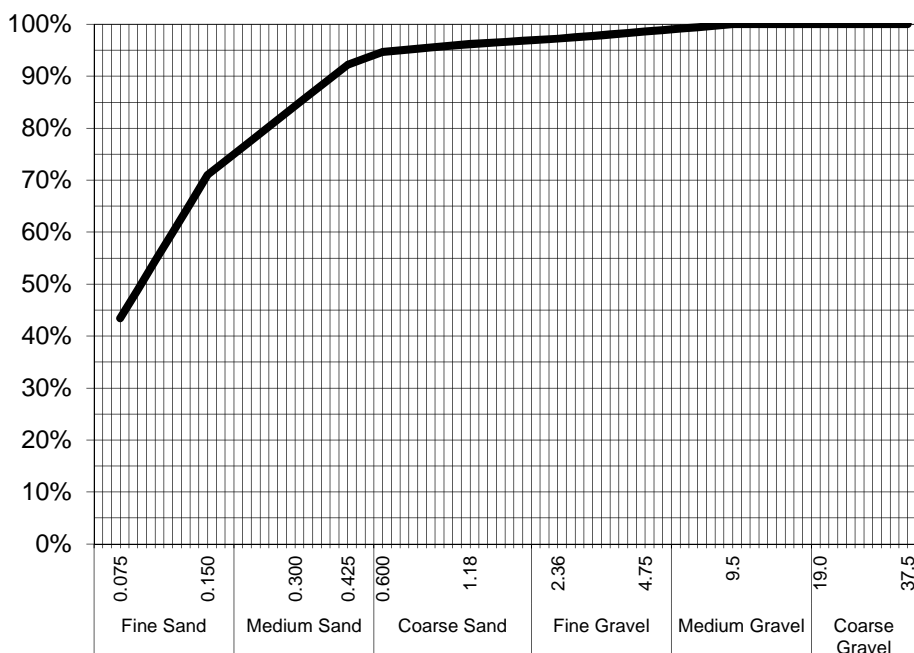
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-001 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS01\_0.20

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	97%
1.18	96%
0.600	95%
0.425	92%
0.300	84%
0.150	71%
0.075	43%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

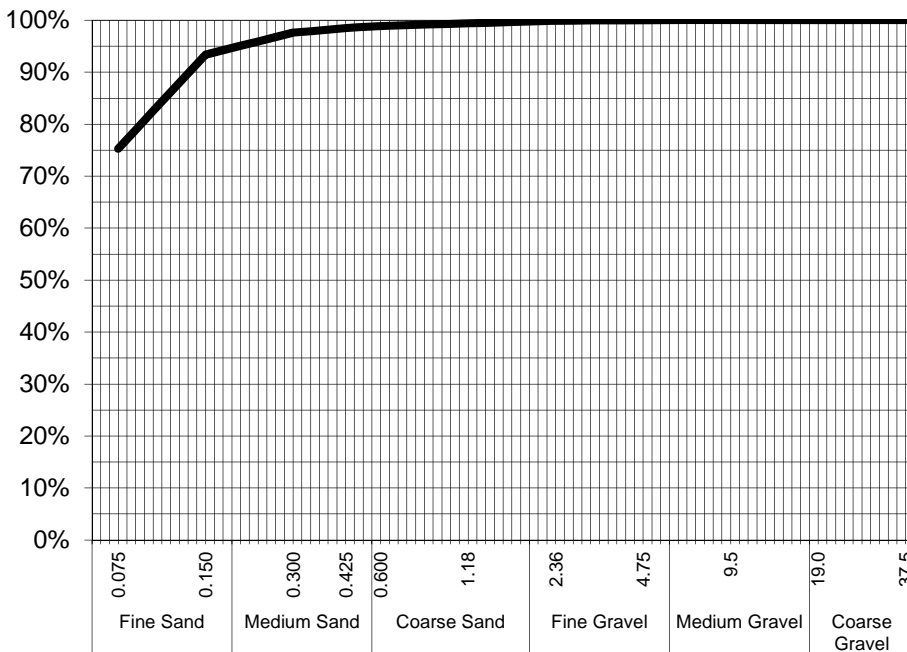
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-002 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS01\_0.50

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	99%
0.300	98%
0.150	93%
0.075	75%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

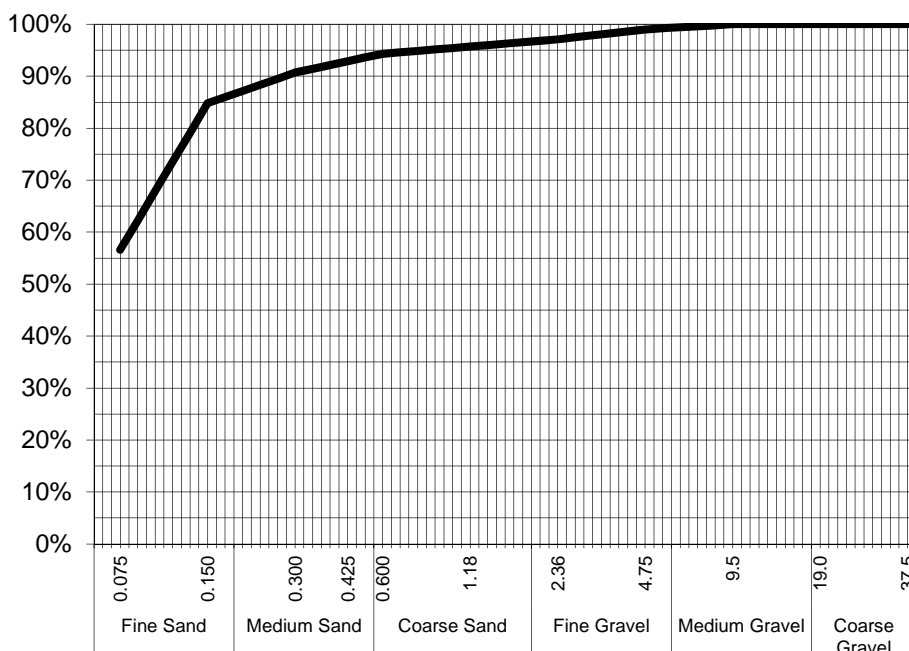
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-003 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS03\_0.15

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	97%
1.18	96%
0.600	94%
0.425	93%
0.300	91%
0.150	85%
0.075	57%

Samples analysed as received.

### Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

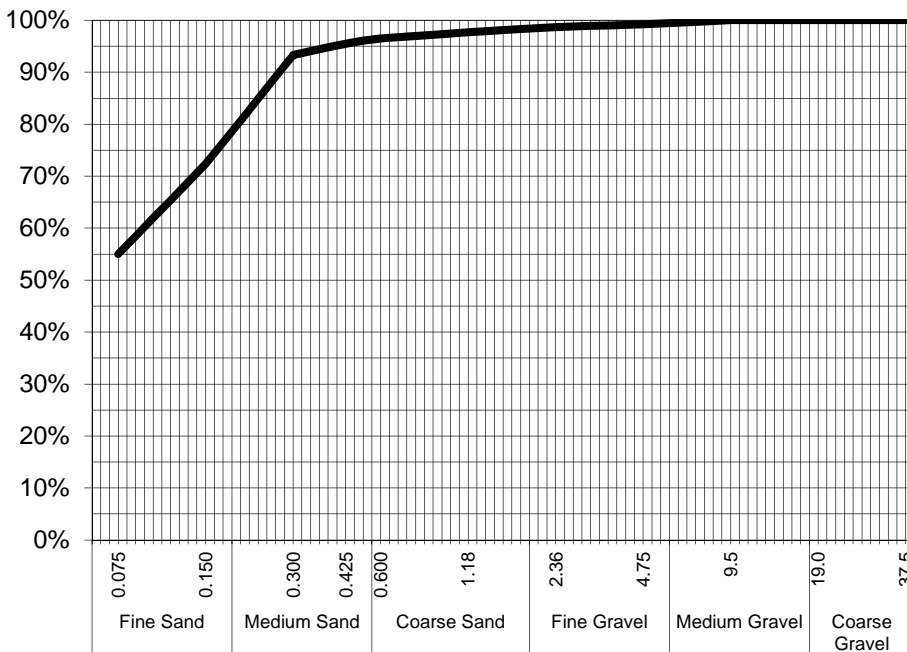
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-004 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS03\_0.40

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	99%
1.18	98%
0.600	97%
0.425	96%
0.300	93%
0.150	72%
0.075	55%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

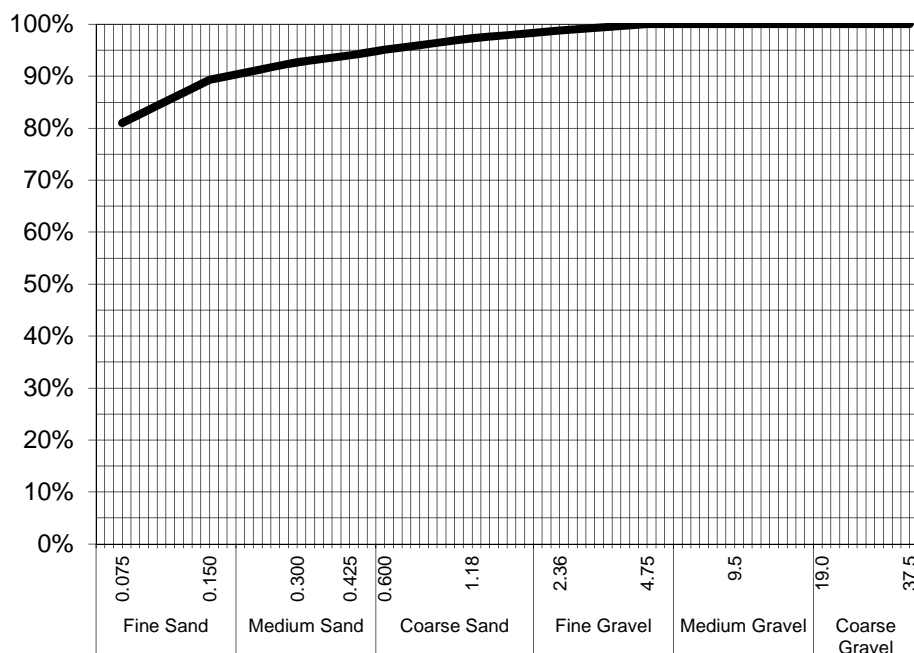
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-005 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_C\_SS02\_0.10

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	99%
1.18	97%
0.600	95%
0.425	94%
0.300	93%
0.150	89%
0.075	81%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

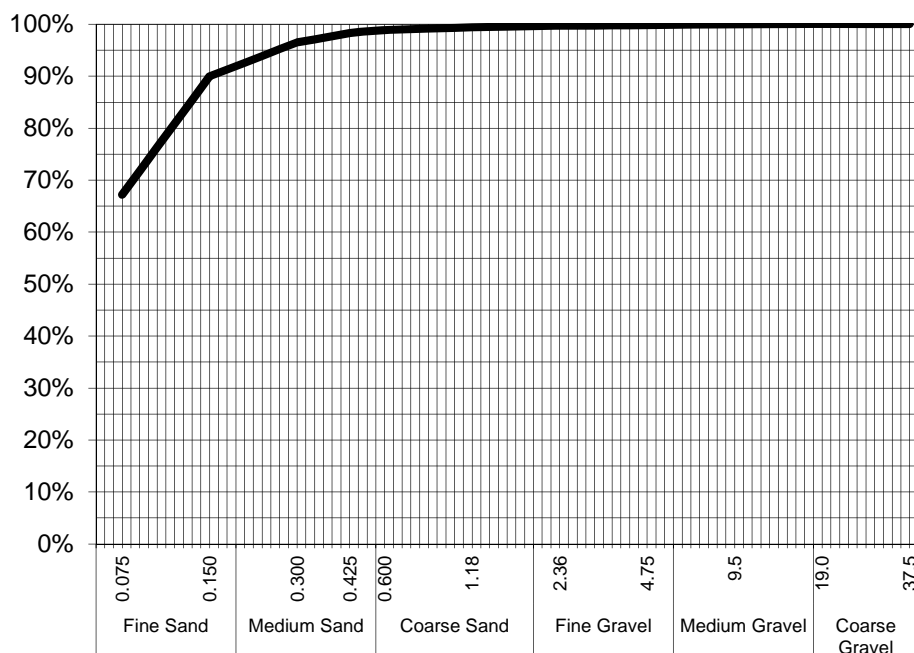
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
pH 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-007 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS02\_0.25

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	99%
0.425	98%
0.300	97%
0.150	90%
0.075	67%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be  
reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

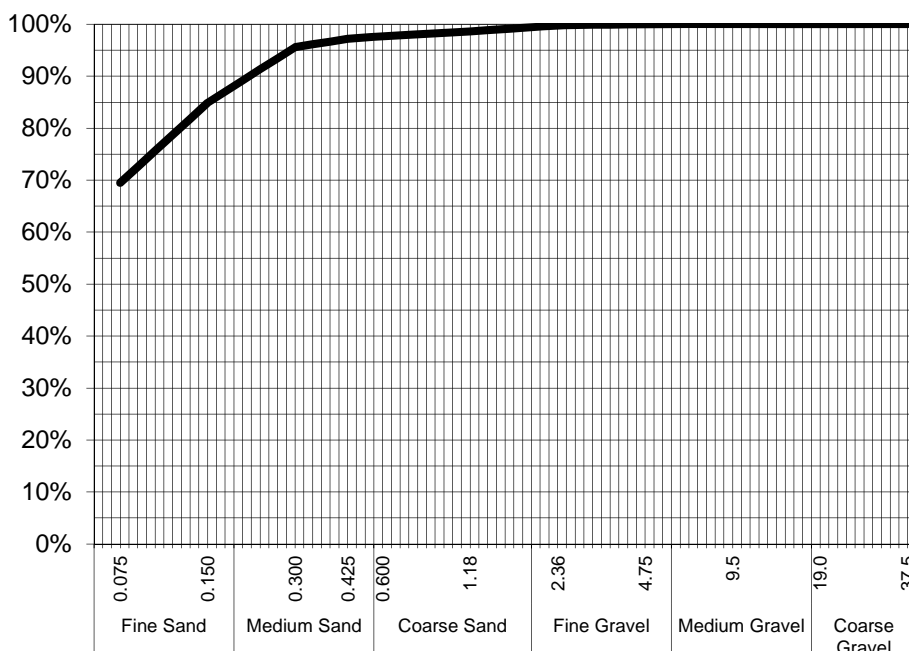
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 24-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 13-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405527-008 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VR\_M\_SS02\_0.50

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	100%
2.36	100%
1.18	99%
0.600	98%
0.425	97%
0.300	96%
0.150	85%
0.075	70%

Samples analysed as received.

### Sample Comments:

**Analysed:** 21-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405660</b>	Page	: 1 of 39
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: SB	No. of samples received	: 35
Site	: ----	No. of samples analysed	: 35
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EG005: Poor precision was obtained for Vanadium on sample ES1405661 - 12 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.**
- **EP080: Poor surrogate recovery due to sample matrix(charcoal). Confirmed by re-analysis.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VN_SB03_1.2	VN_MW03_0.4	VN_MW03_0.8	VN_MW10_0.2	VN_MW10_3.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405660-001	ES1405660-002	ES1405660-003	ES1405660-004	ES1405660-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.8	7.6	9.2	9.1	13.6
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	21	<5
Barium	7440-39-3	10	mg/kg	40	60	30	<10	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	5	6	28	2
Cobalt	7440-48-4	2	mg/kg	<2	3	2	<2	<2
Copper	7440-50-8	5	mg/kg	6	5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	13	9	8	14	<5
Manganese	7439-96-5	5	mg/kg	5	53	43	7	<5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	3	3	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	45	15	11	105	24
Zinc	7440-66-6	5	mg/kg	6	26	25	6	<5
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB03_1.2	VN_MW03_0.4	VN_MW03_0.8	VN_MW10_0.2	VN_MW10_3.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-001	ES1405660-002	ES1405660-003	ES1405660-004	ES1405660-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VN_SB03_1.2	VN_MW03_0.4	VN_MW03_0.8	VN_MW10_0.2	VN_MW10_3.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-001	ES1405660-002	ES1405660-003	ES1405660-004	ES1405660-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	97.0	88.6	89.2	92.5	86.5
2-Chlorophenol-D4	93951-73-6	0.1	%	94.3	86.8	87.5	95.4	84.8
2,4,6-Tribromophenol	118-79-6	0.1	%	93.1	86.2	84.8	90.6	82.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	106	97.4	97.6	102	95.7
Anthracene-d10	1719-06-8	0.1	%	113	104	104	109	100
4-Terphenyl-d14	1718-51-0	0.1	%	107	97.5	98.0	103	96.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.4	103	105	103	98.6
Toluene-D8	2037-26-5	0.1	%	121	104	118	122	111
4-Bromofluorobenzene	460-00-4	0.1	%	94.8	89.5	102	102	95.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW04_0.2	VJ_MW04_1.0	VJ_SB03_1.4	VJ_MW03_0.5	D01_130314_GP
				13-MAR-2014 09:35	13-MAR-2014 10:00	13-MAR-2014 11:10	13-MAR-2014 11:45	13-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405660-006	ES1405660-007	ES1405660-008	ES1405660-010	ES1405660-011
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	55	----	----	----
+150µm	----	1	%	----	48	----	----	----
+300µm	----	1	%	----	46	----	----	----
+425µm	----	1	%	----	42	----	----	----
+600µm	----	1	%	----	37	----	----	----
+1180µm	----	1	%	----	31	----	----	----
+2.36mm	----	1	%	----	22	----	----	----
+4.75mm	----	1	%	----	11	----	----	----
+9.5mm	----	1	%	----	<1	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	4.0	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.0	----	12.7	11.9	12.6
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	45	----	----	----
Sand (>75 µm)	----	1	%	----	33	----	----	----
Gravel (>2mm)	----	1	%	----	22	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	3.1	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.3	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	3.6	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	0.4	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	----	<10	20	20
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	----	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW04_0.2	VJ_MW04_1.0	VJ_SB03_1.4	VJ_MW03_0.5	D01_130314_GP
				13-MAR-2014 09:35	13-MAR-2014 10:00	13-MAR-2014 11:10	13-MAR-2014 11:45	13-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405660-006	ES1405660-007	ES1405660-008	ES1405660-010	ES1405660-011
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	----	14	30	12
Cobalt	7440-48-4	2	mg/kg	<2	----	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	----	<5	10	10
Lead	7439-92-1	5	mg/kg	<5	----	<5	11	7
Manganese	7439-96-5	5	mg/kg	<5	----	<5	73	60
Molybdenum	7439-98-7	2	mg/kg	<2	----	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	----	<2	4	4
Selenium	7782-49-2	5	mg/kg	<5	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	23	----	40	70	32
Zinc	7440-66-6	5	mg/kg	<5	----	<5	18	17
Thallium	7440-28-0	5	mg/kg	<5	----	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.06	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW04_0.2	VJ_MW04_1.0	VJ_SB03_1.4	VJ_MW03_0.5	D01_130314_GP
				13-MAR-2014 09:35	13-MAR-2014 10:00	13-MAR-2014 11:10	13-MAR-2014 11:45	13-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405660-006	ES1405660-007	ES1405660-008	ES1405660-010	ES1405660-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW04_0.2	VJ_MW04_1.0	VJ_SB03_1.4	VJ_MW03_0.5	D01_130314_GP
				13-MAR-2014 09:35	13-MAR-2014 10:00	13-MAR-2014 11:10	13-MAR-2014 11:45	13-MAR-2014 11:45
Compound	CAS Number	LOR	Unit	ES1405660-006	ES1405660-007	ES1405660-008	ES1405660-010	ES1405660-011
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.9	----	89.9	90.9	92.3
2-Chlorophenol-D4	93951-73-6	0.1	%	86.5	----	92.2	89.6	95.7
2,4,6-Tribromophenol	118-79-6	0.1	%	89.9	----	90.0	88.4	86.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.6	----	98.6	100	101
Anthracene-d10	1719-06-8	0.1	%	105	----	105	107	108
4-Terphenyl-d14	1718-51-0	0.1	%	98.8	----	99.6	100	101
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.5	----	99.0	99.6	100
Toluene-D8	2037-26-5	0.1	%	104	----	96.2	103	108
4-Bromofluorobenzene	460-00-4	0.1	%	87.6	----	90.9	88.1	94.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_SB02_1.0	VJ_MW02_0.5	VJ_SB04_0.15	VJ_SB01_1.0	VK_MW05_0.1
				13-MAR-2014 12:40	13-MAR-2014 13:10	13-MAR-2014 14:05	13-MAR-2014 14:55	13-MAR-2014 16:25
Compound	CAS Number	LOR	Unit	ES1405660-012	ES1405660-013	ES1405660-014	ES1405660-015	ES1405660-016
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.8	13.0	7.5	12.0	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Sample weight (dry)	----	0.01	g	----	----	----	----	833
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	0.833
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	----	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	<10	<10	<10	20	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	7	9	4	<2	----
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	<5	6	<5	<5	----
Manganese	7439-96-5	5	mg/kg	<5	17	20	28	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	----
Nickel	7440-02-0	2	mg/kg	<2	2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	34	27	11	<5	----
Zinc	7440-66-6	5	mg/kg	<5	12	<5	8	----
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_SB02_1.0	VJ_MW02_0.5	VJ_SB04_0.15	VJ_SB01_1.0	VK_MW05_0.1
				13-MAR-2014 12:40	13-MAR-2014 13:10	13-MAR-2014 14:05	13-MAR-2014 14:55	13-MAR-2014 16:25
Compound	CAS Number	LOR	Unit	ES1405660-012	ES1405660-013	ES1405660-014	ES1405660-015	ES1405660-016
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>0.8</b>	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<b>0.9</b>	<b>3.8</b>	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<b>0.5</b>	<b>1.9</b>	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<b>1.3</b>	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>0.8</b>	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<b>0.9</b>	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<b>1.4</b>	<b>9.5</b>	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_SB02_1.0	VJ_MW02_0.5	VJ_SB04_0.15	VJ_SB01_1.0	VK_MW05_0.1
				13-MAR-2014 12:40	13-MAR-2014 13:10	13-MAR-2014 14:05	13-MAR-2014 14:55	13-MAR-2014 16:25
Compound	CAS Number	LOR	Unit	ES1405660-012	ES1405660-013	ES1405660-014	ES1405660-015	ES1405660-016
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	19	45	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	60	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	540	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	190	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	790	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	24	55	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	24	55	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	120	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	630	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	750	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	120	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	89.4	88.8	92.6	88.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	85.6	85.8	89.6	89.0	----
2,4,6-Tribromophenol	118-79-6	0.1	%	82.8	82.8	86.8	80.7	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	95.5	96.5	99.6	100	----
Anthracene-d10	1719-06-8	0.1	%	102	104	104	94.1	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.3	99.1	99.4	95.8	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.9	104	99.2	75.3	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_SB02_1.0	VJ_MW02_0.5	VJ_SB04_0.15	VJ_SB01_1.0	VK_MW05_0.1
				13-MAR-2014 12:40	13-MAR-2014 13:10	13-MAR-2014 14:05	13-MAR-2014 14:55	13-MAR-2014 16:25
Compound	CAS Number	LOR	Unit	ES1405660-012	ES1405660-013	ES1405660-014	ES1405660-015	ES1405660-016
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	106	107	86.9	75.7	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.3	93.9	85.3	52.3	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	48	----	----	----	----
+150µm	----	1	%	43	----	----	----	----
+300µm	----	1	%	34	----	----	----	----
+425µm	----	1	%	28	----	----	----	----
+600µm	----	1	%	23	----	----	----	----
+1180µm	----	1	%	15	----	----	----	----
+2.36mm	----	1	%	7	----	----	----	----
+4.75mm	----	1	%	2	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.1	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	27.8	24.3	16.3	15.6	13.2
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	52	----	----	----	----
Sand (>75 µm)	----	1	%	41	----	----	----	----
Gravel (>2mm)	----	1	%	7	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.3	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	5.2	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.6	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	6.1	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	6	8	3	10
Copper	7440-50-8	5	mg/kg	<5	<5	18	<5	<5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	<5	<5	6	<5	5
Nickel	7440-02-0	2	mg/kg	<2	<2	5	<2	<2
Zinc	7440-66-6	5	mg/kg	<5	<5	22	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.19	----	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW04_2.0	VD_MW01_3.0	VD_MW02-3.0	VD_SB02-2.0	VU_MW03_6.0
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-017	ES1405660-018	ES1405660-019	ES1405660-020	ES1405660-021
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	81.1	86.2	84.9	86.3	----
Toluene-D8	2037-26-5	0.1	%	85.7	93.8	86.7	86.3	----
4-Bromofluorobenzene	460-00-4	0.1	%	78.2	88.1	81.7	80.6	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.8	85.6	87.1	84.8	90.5
2-Chlorophenol-D4	93951-73-6	0.1	%	91.9	83.9	90.5	88.3	92.2
2,4,6-Tribromophenol	118-79-6	0.1	%	83.7	79.5	78.1	76.5	90.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.3	95.5	96.2	94.2	99.2
Anthracene-d10	1719-06-8	0.1	%	103	101	103	99.8	105
4-Terphenyl-d14	1718-51-0	0.1	%	98.0	94.9	95.7	93.4	97.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.3	93.3	92.5	93.8	102
Toluene-D8	2037-26-5	0.1	%	90.5	99.5	91.6	91.0	108
4-Bromofluorobenzene	460-00-4	0.1	%	87.7	94.3	87.1	85.2	89.7



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1			
Client sampling date / time	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00			
Compound	CAS Number	LOR	Unit	ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027

### EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	18.6	12.6	---	---	---
----------------------------------	-----	-----	---	------	------	-----	-----	-----

### EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

Asbestos Detected	1332-21-4	0.1	g/kg	---	---	No	No	No
Asbestos Type	1332-21-4	-	--	---	---	-	-	-
Sample weight (dry)	---	0.01	g	---	---	385	439	539
APPROVED IDENTIFIER:	---	-	--	---	---	S.SPOONER	S.SPOONER	S.SPOONER

### EA200Q: Asbestos Quantification (non-NATA)

Weight Used for % Calculation	---	0.0001	kg	---	---	0.385	0.439	0.539
Asbestos Containing Material	1332-21-4	0.1	g	---	---	<0.1	<0.1	<0.1
Fibrous Asbestos	---	0.002	g	---	---	<0.002	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	---	---	<0.01	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	---	---	<0.001	<0.001	<0.001
Trace Asbestos Detected	---	5	Fibres	---	---	No	No	No

### EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	<5	<5	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	6	7	---	---	---
Copper	7440-50-8	5	mg/kg	<5	<5	---	---	---
Lead	7439-92-1	5	mg/kg	5	<5	---	---	---
Nickel	7440-02-0	2	mg/kg	<2	<2	---	---	---
Zinc	7440-66-6	5	mg/kg	<5	<5	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
---------	-----------	-----	-------	------	------	-----	-----	-----

### EP074A: Monocyclic Aromatic Hydrocarbons

Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	---	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	---	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	---	---	---
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	---	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	---	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	---	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.2	86.2	----	----	----
Toluene-D8	2037-26-5	0.1	%	79.6	86.4	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	77.6	83.0	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	86.9	91.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	90.3	93.0	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	82.2	81.3	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.2	100	----	----	----
Anthracene-d10	1719-06-8	0.1	%	103	106	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	95.6	99.0	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	92.3	94.3	----	----	----
Toluene-D8	2037-26-5	0.1	%	83.7	91.4	----	----	----



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				D01_130314_CM	VD_MW03_2.0	VQ_SB01_0.1	VQ_SB02_0.1	VQ_SB03_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405660-022	ES1405660-023	ES1405660-025	ES1405660-026	ES1405660-027
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Compound	CAS Number	LOR	Unit	83.1	87.8	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%					

Client sampling date / time

Compound CAS Number LOR Unit

**EP080S: TPH(V)/BTEX Surrogates - Continued**

4-Bromofluorobenzene	460-00-4	0.1	%	83.1	87.8	----	----	----
----------------------	----------	-----	---	------	------	------	------	------



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VQ_SB04_0.1	VQ_SB05_0.1	VQ_SB06_0.1	VQ_SB07_0.1	VQ_SB08_0.1
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405660-028	ES1405660-029	ES1405660-030	ES1405660-031	ES1405660-032
Compound	CAS Number	LOR	Unit					
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	Yes	No	No
Asbestos Type	1332-21-4	-	--	-	-	Ch	-	-
Sample weight (dry)	----	0.01	g	534	428	412	556	561
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.534	0.428	0.412	0.556	0.561
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	<0.1	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	<0.002	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	<0.001	<0.001	<0.001
Trace Asbestos Detected	----	5	Fibres	No	No	No	No	No



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time	VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	---	---
13-MAR-2014 15:00				---	---
	ES1405660-033	ES1405660-034	ES1405660-035	----	----

Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	----	----
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	76	----	----	----
+150µm	----	1	%	----	67	----	----	----
+300µm	----	1	%	----	62	----	----	----
+425µm	----	1	%	----	54	----	----	----
+600µm	----	1	%	----	48	----	----	----
+1180µm	----	1	%	----	39	----	----	----
+2.36mm	----	1	%	----	29	----	----	----
+4.75mm	----	1	%	----	18	----	----	----
+9.5mm	----	1	%	----	3	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----

<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	4.9	----	----	----

<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	8.4	----	----	----

<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	24	----	----	----
Sand (>75 µm)	----	1	%	----	47	----	----	----
Gravel (>2mm)	----	1	%	----	29	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----

<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----
Asbestos Type	1332-21-4	-	--	-	----	-	----	----
Sample weight (dry)	----	0.01	g	471	----	446	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	----

<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.471	----	0.446	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	----	----
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	2.4	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.4	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	4.7	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	<0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	9	----	----	----
Copper	7440-50-8	5	mg/kg	----	20	----	----	----
Lead	7439-92-1	5	mg/kg	----	6	----	----	----
Nickel	7440-02-0	2	mg/kg	----	7	----	----	----
Zinc	7440-66-6	5	mg/kg	----	46	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.08	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	---	---
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	---	---
<b>EP074B: Oxygenated Compounds - Continued</b>								
Vinyl Acetate	108-05-4	5	mg/kg	---	<5	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	---	<5	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	---	<5	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	---	<5	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	---	<0.5	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	---	<0.5	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	---	<0.5	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	---	<0.5	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	---	<0.5	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	---	<0.5	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	---	<5	---	---	---
Chloromethane	74-87-3	5	mg/kg	---	<5	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	---	<5	---	---	---
Bromomethane	74-83-9	5	mg/kg	---	<5	---	---	---
Chloroethane	75-00-3	5	mg/kg	---	<5	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	---	<5	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg	---	<0.5	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	---	<0.5	---	---	---
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	---	<0.5	---	---	---
1,1-Dichloroethane	75-34-3	0.5	mg/kg	---	<0.5	---	---	---
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	---	<0.5	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	---	<0.5	---	---	---
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	---	<0.5	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	---	<0.5	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg	---	<0.5	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	---	<0.5	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	---	<0.5	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	---	<0.5	---	---	---
1,3-Dichloropropane	142-28-9	0.5	mg/kg	---	<0.5	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	---	<0.5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	----	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	----	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	---	---
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	---	<10	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	---	<10	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	---	<50	---	---	---
>C16 - C34 Fraction	---	100	mg/kg	---	<100	---	---	---
>C34 - C40 Fraction	---	100	mg/kg	---	<100	---	---	---
^ >C10 - C40 Fraction (sum)	---	50	mg/kg	---	<50	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	---	<50	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	---	<0.2	---	---	---
Toluene	108-88-3	0.5	mg/kg	---	<0.5	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	---	<0.5	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	<0.5	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	---	<0.5	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	---	<0.2	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	---	<0.5	---	---	---
Naphthalene	91-20-3	1	mg/kg	---	<1	---	---	---
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	---	<0.0005	---	---	---
PFOA	335-67-1	0.0005	mg/kg	---	<0.0005	---	---	---
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	---	<0.005	---	---	---
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	---	<b>82.5</b>	---	---	---
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	---	<b>94.5</b>	---	---	---
Toluene-D8	2037-26-5	0.1	%	---	<b>92.9</b>	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	---	<b>86.5</b>	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	---	<b>94.7</b>	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	---	<b>108</b>	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	---	<b>94.3</b>	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VQ_SB09_0.1	VA_MW01_0.5	VA_MW01_0.1	----	----
-------------	-------------	-------------	------	------

Client sampling date / time

13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	----	----
-------------------	-------------------	-------------------	------	------

Compound	CAS Number	LOR	Unit	ES1405660-033	ES1405660-034	ES1405660-035	----	----
----------	------------	-----	------	---------------	---------------	---------------	------	------

### EP075(SIM)T: PAH Surrogates - Continued

2-Fluorobiphenyl	321-60-8	0.1	%	----	80.3	----	----	----
Anthracene-d10	1719-06-8	0.1	%	----	90.9	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	83.2	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	103	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	98.1	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	92.0	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_130314_GP	R01_130314_CM	---	---	---
				13-MAR-2014 11:35	13-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405660-009	ES1405660-024	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	---	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	---	<0.0001	---	---	---
Chromium	7440-47-3	0.001	mg/L	---	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	---	<0.001	---	---	---
Nickel	7440-02-0	0.001	mg/L	---	<0.001	---	---	---
Lead	7439-92-1	0.001	mg/L	---	<0.001	---	---	---
Zinc	7440-66-6	0.005	mg/L	---	<0.005	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	---	<0.0001	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_130314_GP	R01_130314_CM	---	---	---
				13-MAR-2014 11:35	13-MAR-2014 15:00	---	---	---
				ES1405660-009	ES1405660-024	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_130314_GP	R01_130314_CM	----	----	----
				13-MAR-2014 11:35	13-MAR-2014 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1405660-009	ES1405660-024	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	27.7	26.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	48.2	46.5	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	62.0	57.1	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	64.5	67.7	----	----	----
Anthracene-d10	1719-06-8	0.1	%	103	104	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	80.2	84.4	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.7	74.6	----	----	----
Toluene-D8	2037-26-5	0.1	%	97.2	96.7	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.0	74.9	----	----	----



## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VK_MW05_0.1 - 13-MAR-2014 16:25	Mid grey clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VQ_SB01_0.1 - 13-MAR-2014 15:00	Mid brown clay soil with red and grey rocks plus a trace of vegetation.
EA200: Description	VQ_SB02_0.1 - 13-MAR-2014 15:00	Mid orange clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VQ_SB03_0.1 - 13-MAR-2014 15:00	Mid orange clay soil with grey and orange rocks plus plenty of vegetation.
EA200: Description	VQ_SB04_0.1 - 13-MAR-2014 15:00	Mid brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VQ_SB05_0.1 - 13-MAR-2014 15:00	Mid grey soil with grey rocks and plenty of slag debris plus a trace of vegetation.
EA200: Description	VQ_SB06_0.1 - 13-MAR-2014 15:00	Dark grey soil with grey rocks and plenty of slag debris plus several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm.
EA200: Description	VQ_SB07_0.1 - 13-MAR-2014 15:00	Mid brown clay soil with dark grey rocks plus some slag grains with a trace of vegetation.
EA200: Description	VQ_SB08_0.1 - 13-MAR-2014 15:00	Mid orange - brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VQ_SB09_0.1 - 13-MAR-2014 15:00	Grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VA_MW01_0.1 - 13-MAR-2014 15:00	Mid grey clay soil with grey and red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405660</b>	Page	: 1 of 32
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: SB	No. of samples received	: 35
Order number	: 0237747	No. of samples analysed	: 35
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3349015)</b>									
ES1405023-030	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.2	5.2	0.0	0% - 20%
ES1405661-024	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.0	2.8	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3352609)</b>									
ES1405584-017	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.8	10.9	1.3	0% - 50%
ES1405660-012	VJ_SB02_1.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.8	12.6	14.9	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3352610)</b>									
ES1405660-022	D01_130314_CM	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.6	19.8	6.2	0% - 50%
ES1405661-012	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.4	16.0	2.3	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3347191)</b>									
ES1405660-007	VJ_MW04_1.0	ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.1	3.0	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.6	3.5	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354817)</b>									
ES1405660-001	VN_SB03_1.2	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	21	33.8	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	10	48.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	17	25.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	5	6	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	45	58	25.5	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	6	8	25.6	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-013	VJ_MW02_0.5	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354817) - continued</b>									
ES1405660-013	VJ_MW02_0.5	EG005T: Chromium	7440-47-3	2	mg/kg	9	8	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	17	15	14.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	27	24	14.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	12	13	12.5	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354819)</b>									
ES1405660-034	VA_MW01_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	12	46.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	46	42	9.6	No Limit
ES1405661-012	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	22	43.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	5	0.0	No Limit
EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354818)</b>									
ES1405660-001	VN_SB03_1.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405660-013	VJ_MW02_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354820)</b>									
ES1405660-034	VA_MW01_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405661-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3346754)</b>									
ES1405524-012	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.12	0.11	0.0	No Limit
ES1405527-008	Anonymous	EP003: Total Organic Carbon	----	0.02	%	2.57	2.64	2.7	0% - 20%
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525)</b>									
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525) - continued</b>									
ES1405738-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3342776) - continued</b>									
ES1405660-034	VA_MW01_0.5	EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405660-034	VA_MW01_0.5	EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		ES1405660-034	VA_MW01_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5
EP074: Bromobenzene	108-86-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 4-Chlorotoluene	106-43-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,3-Dichlorobenzene	541-73-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,4-Dichlorobenzene	106-46-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2-Dichlorobenzene	95-50-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,4-Trichlorobenzene	120-82-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		

**EP074G: Trihalomethanes (QC Lot: 3342776)**



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074G: Trihalomethanes (QC Lot: 3342776) - continued</b>									
ES1405525-017	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342968)</b>									
ES1405660-001	VN_SB03_1.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405660-013	VJ_MW02_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3343275)</b>									
ES1405588-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3343275) - continued</b>									
ES1405588-002	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405661-026	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342968)</b>							
ES1405660-001	VN_SB03_1.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342968) - continued</b>									
ES1405660-001	VN_SB03_1.2	EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-013	VJ_MW02_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3343275)</b>									
ES1405588-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3343275) - continued</b>									
ES1405661-026	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	VA_MW01_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342967)</b>									
ES1405660-001	VN_SB03_1.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405660-013	VJ_MW02_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3343274)</b>									
ES1405588-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405661-026	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344810)</b>									
ES1405660-001	VN_SB03_1.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-013	VJ_MW02_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342775)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342775) - continued</b>										
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405660-034	VA_MW01_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342967)</b>										
ES1405660-001	VN_SB03_1.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405660-013	VJ_MW02_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3343274)</b>										
ES1405588-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405661-026	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344810)</b>										
ES1405660-001	VN_SB03_1.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405660-013	VJ_MW02_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3342775)</b>										
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405660-034	VA_MW01_0.5	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3344810)</b>										
ES1405660-001	VN_SB03_1.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3344810) - continued</b>										
ES1405660-001	VN_SB03_1.2	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1405660-013	VJ_MW02_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>EP231: Perfluorinated Compounds (QC Lot: 3348902)</b>										
ES1405660-034	VA_MW01_0.5	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	
ES1405879-008	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	
<b>Sub-Matrix: WATER</b>										
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3344880)</b>										
ES1405575-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.009	0.007	28.1	No Limit	
ES1405593-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3353720)</b>										
ES1405660-009	R01_130314_GP	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3353720) - continued</b>									
ES1405660-009	R01_130314_GP	EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1405949-009	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.016	0.016	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.005	20.2	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3344879)</b>									
ES1405575-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405593-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347392)</b>									
EM1402153-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405660-009	R01_130314_GP	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3349623)</b>									
ES1405516-138	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405516-147	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3349623)</b>									
ES1405516-138	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405516-147	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3349623)</b>									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3349623) - continued</b>									
ES1405516-138	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405516-147	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3347191)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354817)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	106	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	105	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	124	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	112	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	109	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	110	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	117	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	117	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	103	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	114	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	115	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	74.6	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354819)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	128	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	117	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	111	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	121	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	115	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354818)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.4	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354820)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354820) - continued</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.6	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3346754)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	96.4	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.9	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342776)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	80.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	79.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	76.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	75.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342776)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	31.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	95.8	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	83.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	86.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342776)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.6	54	126	
<b>EP074D: Fumigants (QCLot: 3342776)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	70.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	82.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	80.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	75.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	49.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	67.2	41	141	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776) - continued</b>								
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	89.6	43	147
		5	mg/kg	<5	----	----	----	----
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	77.7	47	141
		5	mg/kg	<5	----	----	----	----
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	77.7	49	143
		5	mg/kg	<5	----	----	----	----
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.2	49	135
		5	mg/kg	<5	----	----	----	----
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	79.5	43	129
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	130
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	83.4	66	132
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	85.5	66	132
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	76.5	62	126
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	64	128
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.6	59	125
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	123
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	85.4	64	120
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	65	127
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	90.8	70	130
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	86.2	72	128
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	139	67	143
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	62	122
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	128
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	55	129
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	83.0	56	132
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.1	65	135
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	20.6	19.8	134
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	81.5	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	48	136
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	128	70	128
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	78.1	67	127
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	130
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	62	130
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	80.7	63	129
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	129
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	128
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	70.6	54	134





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776) - continued</b>									
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342776)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	85.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	85.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	90.0	60	126	
<b>EP074H: Naphthalene (QCLot: 3342776)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	81.1	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342968)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	92.6	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	99.9	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	97.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	100	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	95.1	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	92.1	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	95.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.6	10	57	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343275)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	100	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.9	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	101	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	85.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	90.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	87.9	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	91.2	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	81.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	77.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	69.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.8	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342968)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	104	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	107	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342968) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	106	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	99.2	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	103	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	103	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	97.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	97.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	94.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	95.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	89.2	72.4	114	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343275)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	106	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	97.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	96.0	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	89.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	92.5	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	89.2	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	107	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	80.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	80.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	81.0	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342967)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	91.2	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	99.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	92.9	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343274)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343274) - continued</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	99.3	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	250 mg/kg	114	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	87.2	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342967)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	91.7	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	74.7	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343274)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	91.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	200 mg/kg	89.0	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.2	68.4	128	
<b>EP080: BTEXN (QCLot: 3342775)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.5	62	138	
<b>EP080: BTEXN (QCLot: 3344810)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.3	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.1	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.8	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	91.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.4	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	79.1	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	86.4	54	134	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902) - continued</b>									
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	85.8	56	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3344880)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.1	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.8	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.7	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.0	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.6	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.6	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.0	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	108	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	111	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	105	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	103	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	108	73	127	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3344879)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	92.9	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.9	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343235)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	# 61.8	63.8	110	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343235) - continued</b>									
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	77.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	70.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	70.4	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	90.7	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	83.0	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	80.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	87.9	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	92.0	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	79.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	31.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343235)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	71.8	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	81.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	77.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	83.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	100	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	75.3	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	78.7	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	102	64.1	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343235) - continued</b>									
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	81.7	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	68.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	90.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	84.3	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	85.0	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	79.6	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343237)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	89.8	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	100	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	87.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349623)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	92.5	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343237)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	88.5	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	96.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	105	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349623)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	93.8	75	127	
<b>EP080: BTEXN (QCLot: 3349623)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	95.5	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	95.9	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.6	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354817)</b>							
ES1405660-001	VN_SB03_1.2	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	114	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	116	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	112	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	112	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	112	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	112	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354819)</b>							
ES1405660-034	VA_MW01_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
		<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354818)</b>					
ES1405660-001	VN_SB03_1.2	EG035T: Mercury	7439-97-6	5 mg/kg	98.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354820)</b>							
ES1405660-034	VA_MW01_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	99.3	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>							
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342968)</b>							
ES1405660-001	VN_SB03_1.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.0	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.7	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	73.4	20	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343275)</b>							
ES1405588-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	70	130





Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343275) - continued</b>							
ES1405588-002	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	121	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	99.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	80.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342968)</b>							
ES1405660-001	VN_SB03_1.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.8	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343275)</b>							
ES1405588-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>							
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342967)</b>							
ES1405660-001	VN_SB03_1.2	EP071: C10 - C14 Fraction	----	640 mg/kg	75.8	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	86.5	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343274)</b>							
ES1405588-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	84.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.4	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.5	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>							
ES1405660-001	VN_SB03_1.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>							
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342967)</b>							
ES1405660-001	VN_SB03_1.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.7	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343274)</b>							
ES1405588-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.4	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>							
ES1405660-001	VN_SB03_1.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	70	130
<b>EP080: BTEXN (QCLot: 3342775)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3342775) - continued</b>								
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	70	130		
<b>EP080: BTEXN (QCLot: 3344810)</b>								
ES1405660-001	VN_SB03_1.2	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.8	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	88.2	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>								
ES1405660-034	VA_MW01_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	0.0125 mg/kg	76.1	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3344880)</b>							
ES1405575-006	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	95.3	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.1	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	91.3	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	94.2	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	89.0	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.1	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	90.3	70	130
		<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>					
ES1405661-008	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	103	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	102	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.2	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	96.8	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.6	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720) - continued</b>								
ES1405661-008	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	99.0	70	130	
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.0	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.6	70	130	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	95.7	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3344879)</b>								
ES1405575-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	87.5	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>								
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349623)</b>								
ES1405516-138	Anonymous	EP080: C6 - C9 Fraction	---	325 µg/L	121	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349623)</b>								
ES1405516-138	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	125	70	130	
<b>EP080: BTEXN (QCLot: 3349623)</b>								
ES1405516-138	Anonymous	EP080: Benzene	71-43-2	25 µg/L	93.3	70	130	
		EP080: Toluene	108-88-3	25 µg/L	104	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	103	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>										
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>										
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3342775)</b>										
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3342775) - continued</b>										
ES1405525-017	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>										
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>										
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342967)</b>										
ES1405660-001	VN_SB03_1.2	EP071: C10 - C14 Fraction	----	640 mg/kg	75.8	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.5	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	86.5	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342967)</b>										
ES1405660-001	VN_SB03_1.2	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	103	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.2	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	63.7	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342968)</b>										
ES1405660-001	VN_SB03_1.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.0	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.7	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.8	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	73.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342968)</b>										
ES1405660-001	VN_SB03_1.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.8	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343274)</b>										
ES1405588-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	84.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.4	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.5	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343274)</b>										
ES1405588-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	110	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343275)</b>										
ES1405588-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	121	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343275) - continued</b>											
ES1405588-002	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	99.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	80.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	80.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343275)</b>											
ES1405588-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	117	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344810)</b>											
ES1405660-001	VN_SB03_1.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344810)</b>											
ES1405660-001	VN_SB03_1.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3344810)</b>											
ES1405660-001	VN_SB03_1.2	EP080: Benzene	71-43-2	2.5 mg/kg	81.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	104	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.2	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>											
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>											
ES1405660-034	VA_MW01_0.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	----	56	138	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354817)</b>											
ES1405660-001	VN_SB03_1.2	EG005T: Arsenic	7440-38-2	50 mg/kg	116	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	114	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	116	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	116	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	112	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	112	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	112	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	112	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354818)</b>											
ES1405660-001	VN_SB03_1.2	EG035T: Mercury	7439-97-6	5 mg/kg	98.8	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354819)</b>											
ES1405660-034	VA_MW01_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354819) - continued</b>										
ES1405660-034	VA_MW01_0.5	EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	105	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354820)</b>										
ES1405660-034	VA_MW01_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	99.3	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3344879)</b>										
ES1405575-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	87.5	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3344880)</b>										
ES1405575-006	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	95.3	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.1	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	91.3	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	94.2	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	89.0	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.1	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	90.3	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>										
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349623)</b>										
ES1405516-138	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	121	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349623)</b>										
ES1405516-138	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	125	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3349623)</b>										
ES1405516-138	Anonymous	EP080: Benzene	71-43-2	25 µg/L	93.3	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	110	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	103	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>										
ES1405661-008	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720) - continued</b>										
ES1405661-008	Anonymous	EG020A-T: Beryllium	7440-41-7	1 mg/L	103	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	102	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.2	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	96.8	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	97.6	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.6	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	95.7	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405660</b>	Page	: 1 of 13
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: SB	No. of samples received	: 35
Order number	: 0237747	No. of samples analysed	: 35
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VJ_MW04_1.0, VA_MW01_0.5	VD_MW04_2.0,	13-MAR-2014	20-MAR-2014	20-MAR-2014	✓	20-MAR-2014	20-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VN_SB03_1.2, VN_MW03_0.8, VN_MW10_3.0, VJ_SB03_1.4, D01_130314_GP, VJ_MW02_0.5, VJ_SB01_1.0, VD_MW01_3.0, VD_SB02-2.0, D01_130314_CM, VA_MW01_0.5	VN_MW03_0.4, VN_MW10_0.2, VJ_MW04_0.2, VJ_MW03_0.5, VJ_SB02_1.0, VJ_SB04_0.15, VD_MW04_2.0, VD_MW02-3.0, VU_MW03_6.0, VD_MW03_2.0,	13-MAR-2014	---	---	---	21-MAR-2014	27-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VJ_MW04_1.0, VA_MW01_0.5	VD_MW04_2.0,	13-MAR-2014	---	09-SEP-2014	---	25-MAR-2014	20-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VJ_MW04_1.0, VA_MW01_0.5	VD_MW04_2.0,	13-MAR-2014	---	09-SEP-2014	---	25-MAR-2014	20-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VK_MW05_0.1, VQ_SB02_0.1, VQ_SB04_0.1, VQ_SB06_0.1, VQ_SB08_0.1, VA_MW01_0.1	VQ_SB01_0.1, VQ_SB03_0.1, VQ_SB05_0.1, VQ_SB07_0.1, VQ_SB09_0.1,	13-MAR-2014	---	09-SEP-2014	---	26-MAR-2014	22-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VJ_MW04_1.0, VA_MW01_0.5	VD_MW04_2.0,	13-MAR-2014	19-MAR-2014	10-APR-2014	✓	20-MAR-2014	10-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VN_SB03_1.2, VN_MW03_0.8, VN_MW10_3.0, VJ_SB03_1.4, D01_130314_GP, VJ_MW02_0.5, VJ_SB01_1.0, VD_MW01_3.0, VD_SB02-2.0, D01_130314_CM, VA_MW01_0.5	VN_MW03_0.4, VN_MW10_0.2, VJ_MW04_0.2, VJ_MW03_0.5, VJ_SB02_1.0, VJ_SB04_0.15, VD_MW04_2.0, VD_MW02-3.0, VU_MW03_6.0, VD_MW03_2.0,	13-MAR-2014	24-MAR-2014	09-SEP-2014	✓	25-MAR-2014	09-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VN_SB03_1.2, VN_MW03_0.8, VN_MW10_3.0, VJ_SB03_1.4, D01_130314_GP, VJ_MW02_0.5, VJ_SB01_1.0, VD_MW01_3.0, VD_SB02-2.0, D01_130314_CM, VA_MW01_0.5	VN_MW03_0.4, VN_MW10_0.2, VJ_MW04_0.2, VJ_MW03_0.5, VJ_SB02_1.0, VJ_SB04_0.15, VD_MW04_2.0, VD_MW02-3.0, VU_MW03_6.0, VD_MW03_2.0,	13-MAR-2014	24-MAR-2014	10-APR-2014	✓	26-MAR-2014	10-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VJ_MW04_1.0, VA_MW01_0.5	VD_MW04_2.0,	13-MAR-2014	19-MAR-2014	10-APR-2014	✓	21-MAR-2014	10-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VA_MW01_0.5		13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VA_MW01_0.5	13-MAR-2014	18-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> VN_SB03_1.2, VN_MW03_0.8, VN_MW10_3.0, VJ_SB03_1.4, D01_130314_GP, VJ_MW02_0.5, VJ_SB01_1.0, VD_MW01_3.0, VD_SB02-2.0, D01_130314_CM, VN_MW03_0.4, VN_MW10_0.2, VJ_MW04_0.2, VJ_MW03_0.5, VJ_SB02_1.0, VJ_SB04_0.15, VD_MW04_2.0, VD_MW02-3.0, VU_MW03_6.0, VD_MW03_2.0	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5 VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5 VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5 VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5 VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5	VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5	VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5	VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW04_2.0, VD_MW02-3.0, D01_130314_CM, VA_MW01_0.5	VD_MW01_3.0, VD_SB02-2.0, VD_MW03_2.0	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VA_MW01_0.5		13-MAR-2014	18-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VN_SB03_1.2, VN_MW03_0.8, VN_MW10_3.0, VJ_SB03_1.4, D01_130314_GP, VJ_MW02_0.5, VJ_SB01_1.0, VD_MW01_3.0, VD_SB02-2.0, D01_130314_CM,	VN_MW03_0.4, VN_MW10_0.2, VJ_MW04_0.2, VJ_MW03_0.5, VJ_SB02_1.0, VJ_SB04_0.15, VD_MW04_2.0, VD_MW02-3.0, VU_MW03_6.0, VD_MW03_2.0	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VA_MW01_0.5	13-MAR-2014	18-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VN_SB03_1.2, VN_MW03_0.4, VN_MW03_0.8, VN_MW10_0.2, VN_MW10_3.0, VJ_MW04_0.2, VJ_SB03_1.4, VJ_MW03_0.5, D01_130314_GP, VJ_SB02_1.0, VJ_MW02_0.5, VJ_SB04_0.15, VJ_SB01_1.0, VD_MW04_2.0, VD_MW01_3.0, VD_MW02-3.0, VD_SB02-2.0, VU_MW03_6.0, D01_130314_CM, VD_MW03_2.0	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VD_MW04_2.0, VD_MW01_3.0, VD_MW02-3.0, VD_SB02-2.0, D01_130314_CM, VD_MW03_2.0, VA_MW01_0.5	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_SB03_1.2, VN_MW03_0.4, VN_MW03_0.8, VN_MW10_0.2, VN_MW10_3.0, VJ_MW04_0.2, VJ_SB03_1.4, VJ_MW03_0.5, D01_130314_GP, VJ_SB02_1.0, VJ_MW02_0.5, VJ_SB04_0.15, VJ_SB01_1.0, VU_MW03_6.0	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	25-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VD_MW04_2.0, VD_MW01_3.0, VD_MW02-3.0, VD_SB02-2.0, D01_130314_CM, VD_MW03_2.0, VA_MW01_0.5	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VN_SB03_1.2, VN_MW03_0.4, VN_MW03_0.8, VN_MW10_0.2, VN_MW10_3.0, VJ_MW04_0.2, VJ_SB03_1.4, VJ_MW03_0.5, D01_130314_GP, VJ_SB02_1.0, VJ_MW02_0.5, VJ_SB04_0.15, VJ_SB01_1.0, VU_MW03_6.0	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	25-MAR-2014	27-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP231: Perfluorinated Compounds</b>							
Soil Glass Jar - Unpreserved (EP231) VA_MW01_0.5	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_130314_CM	13-MAR-2014	---	09-SEP-2014	----	19-MAR-2014	09-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_130314_GP	13-MAR-2014	24-MAR-2014	09-SEP-2014	✓	25-MAR-2014	09-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_130314_CM	13-MAR-2014	---	10-APR-2014	----	19-MAR-2014	10-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_130314_GP	13-MAR-2014	----	----	----	19-MAR-2014	10-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_130314_GP, R01_130314_CM	13-MAR-2014	18-MAR-2014	20-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_130314_GP, R01_130314_CM	13-MAR-2014	18-MAR-2014	20-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_130314_GP, R01_130314_CM	13-MAR-2014	18-MAR-2014	20-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_130314_GP, R01_130314_CM	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	21-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_130314_GP, R01_130314_CM	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	21-MAR-2014	27-MAR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	3993662-007	----	<b>2-Chlorophenol</b>	95-57-8	61.8 %	63.8-110%	<b>Recovery less than lower control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405660-015	VJ_SB01_1.0	<b>4-Bromofluorobenzene</b>	460-00-4	52.3 %	71.6-130.0 %	<b>Recovery less than lower data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405660</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 4</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: SB</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 14-MAR-2014</b>	<b>Issue Date</b>	<b>: 17-MAR-2014 13:15</b>
<b>Client Requested Due Date</b>	<b>: 27-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: <b>27-MAR-2014</b></b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.1°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 35</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 35</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample J01\_130314\_GP send to Envirolab**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA200N	Asbestos Quantitation by WANEPM Guidelines - SOIL - ED007 Def	CEC / Exchangeable Cations (ED007) -Default SOIL - EG005T (solids)	Total Metals by ICP-AES SOIL - EP003	Total Organic Carbon (TOC) in Soil SOIL - EP066 (solids)	Polychlorinated Biphenyls by GCMS SOIL - EP074 (solids)	Volatile Organic Compounds
ES1405660-001	13-MAR-2014 15:00	VN_SB03_1.2					✓			
ES1405660-002	13-MAR-2014 15:00	VN_MW03_0.4					✓			
ES1405660-003	13-MAR-2014 15:00	VN_MW03_0.8					✓			
ES1405660-004	13-MAR-2014 15:00	VN_MW10_0.2					✓			
ES1405660-005	13-MAR-2014 15:00	VN_MW10_3.0					✓			
ES1405660-006	13-MAR-2014 09:35	VJ_MW04_0.2					✓			
ES1405660-007	13-MAR-2014 10:00	VJ_MW04_1.0	✓	✓		✓		✓		
ES1405660-008	13-MAR-2014 11:10	VJ_SB03_1.4					✓			
ES1405660-010	13-MAR-2014 11:45	VJ_MW03_0.5					✓			
ES1405660-011	13-MAR-2014 11:45	D01_130314_GP					✓			
ES1405660-012	13-MAR-2014 12:40	VJ_SB02_1.0					✓			
ES1405660-013	13-MAR-2014 13:10	VJ_MW02_0.5					✓			
ES1405660-014	13-MAR-2014 14:05	VJ_SB04_0.15					✓			
ES1405660-015	13-MAR-2014 14:55	VJ_SB01_1.0					✓			
ES1405660-016	13-MAR-2014 16:25	VK_MW05_0.1			✓					
ES1405660-017	13-MAR-2014 15:00	VD_MW04_2.0	✓	✓		✓		✓		✓
ES1405660-018	13-MAR-2014 15:00	VD_MW01_3.0								✓
ES1405660-019	13-MAR-2014 15:00	VD_MW02-3.0								✓
ES1405660-020	13-MAR-2014 15:00	VD_SB02-2.0								✓
ES1405660-022	13-MAR-2014 15:00	D01_130314_CM								✓
ES1405660-023	13-MAR-2014 15:00	VD_MW03_2.0								✓
ES1405660-025	13-MAR-2014 15:00	VQ_SB01_0.1			✓					
ES1405660-026	13-MAR-2014 15:00	VQ_SB02_0.1			✓					
ES1405660-027	13-MAR-2014 15:00	VQ_SB03_0.1			✓					
ES1405660-028	13-MAR-2014 15:00	VQ_SB04_0.1			✓					
ES1405660-029	13-MAR-2014 15:00	VQ_SB05_0.1			✓					
ES1405660-030	13-MAR-2014 15:00	VQ_SB06_0.1			✓					
ES1405660-031	13-MAR-2014 15:00	VQ_SB07_0.1			✓					
ES1405660-032	13-MAR-2014 15:00	VQ_SB08_0.1			✓					
ES1405660-033	13-MAR-2014 15:00	VQ_SB09_0.1			✓					
ES1405660-034	13-MAR-2014 15:00	VA_MW01_0.5	✓	✓		✓		✓	✓	✓
ES1405660-035	13-MAR-2014 15:00	VA_MW01_0.1			✓					



Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1405660-001	13-MAR-2014 15:00	VN_SB03_1.2			✓	✓
ES1405660-002	13-MAR-2014 15:00	VN_MW03_0.4			✓	✓
ES1405660-003	13-MAR-2014 15:00	VN_MW03_0.8			✓	✓
ES1405660-004	13-MAR-2014 15:00	VN_MW10_0.2			✓	✓
ES1405660-005	13-MAR-2014 15:00	VN_MW10_3.0			✓	✓
ES1405660-006	13-MAR-2014 09:35	VJ_MW04_0.2			✓	✓
ES1405660-008	13-MAR-2014 11:10	VJ_SB03_1.4			✓	✓
ES1405660-010	13-MAR-2014 11:45	VJ_MW03_0.5			✓	✓
ES1405660-011	13-MAR-2014 11:45	D01_130314_GP			✓	✓
ES1405660-012	13-MAR-2014 12:40	VJ_SB02_1.0			✓	✓
ES1405660-013	13-MAR-2014 13:10	VJ_MW02_0.5			✓	✓
ES1405660-014	13-MAR-2014 14:05	VJ_SB04_0.15			✓	✓
ES1405660-015	13-MAR-2014 14:55	VJ_SB01_1.0			✓	✓
ES1405660-017	13-MAR-2014 15:00	VD_MW04_2.0		✓		✓
ES1405660-018	13-MAR-2014 15:00	VD_MW01_3.0		✓		✓
ES1405660-019	13-MAR-2014 15:00	VD_MW02-3.0		✓		✓
ES1405660-020	13-MAR-2014 15:00	VD_SB02-2.0		✓		✓
ES1405660-021	13-MAR-2014 15:00	VU_MW03_6.0		✓		✓
ES1405660-022	13-MAR-2014 15:00	D01_130314_CM		✓		✓
ES1405660-023	13-MAR-2014 15:00	VD_MW03_2.0		✓		✓
ES1405660-034	13-MAR-2014 15:00	VA_MW01_0.5	✓	✓		✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - W-02 8 Metals	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405660-009	13-MAR-2014 11:35	R01_130314_GP	✓		✓	✓
ES1405660-024	13-MAR-2014 15:00	R01_130314_CM		✓		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC)	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT	Email	symphony.deltacoast@erm.com
- EDI Format - XTab	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------







**CHAIN OF CUSTODY**

ALS Laboratory  
Please tick →

ENT: ERM  
 FICE: PYRMONT  
 SUBJECT: VALES POINT POWER STATION  
 DER NUMBER: 0237747  
 E MANAGER: JOHN EWING  
 MPLER: CHAS MASTERS  
 C emailed to ALS? ( YES / NO)  
 all Reports to (will default to PM if no other addresses are listed): symphony.dellacoasi@erm.com  
 all Invoice to (will default to PM if no other addresses are listed): symphony.dellacoasi@erm.com

TURNAROUND REQUIREMENTS:  Standard TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
 Non Standard or urgent TAT (List due date):  
 SY-050-14

ALS QUOTE NO.:  
 CONTACT PH: 0401 776 290  
 SAMPLER MOBILE: 0454130527  
 EDD FORMAT (or default):

FOR LABORATORY USE ONLY (Circle)  
 Custody Seal Intact? Yes No N/A  
 Free Ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comment:

RECEIVED BY: Ravi DATE/TIME: 19:00  
 RELINQUISHED BY: DATE/TIME: 19:00

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fold filtered bottle required)												Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/TEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	PH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH		Ultra Trace Metals
17	VD-MW04-2.0	13/3/14	0	200ml jar, 1 small jar	43	X	X	X	X	X	X	X	X	X				Comments on likely contaminant levels, dilutions, or samples requiring specific GC analysis etc.
18	VD-MW01	13/3/14	0	1 jar, 1 bag	1	X	X	X	X	X	X	X	X	X				
19	VD-MW01-3.0	13/3/14	0	1 jar	1	X	X	X	X	X	X	X	X	X				
20	VD-MW02-3.0	13/3/14	0	1 jar	1	X	X	X	X	X	X	X	X	X				
21	VD-S002-2.0	13/3/14	0	1 jar	1	X	X	X	X	X	X	X	X	X				
22	VD-MW03-6.0	13/3/14	0	1 jar	1	X	X	X	X	X	X	X	X	X				
23	VD-130314-CM	13/3/14	0	1 jar	1	X	X	X	X	X	X	X	X	X				
24	VD-MW03-2.0	13/3/14	0			X	X	X	X	X	X	X	X	X				
25	VD-130314-CM	13/3/14	W	2 vials, 1 bottle, 1 plastic	3	X	X	X	X	X	X	X	X	X				
			S															
			S															
			S															

Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate soils; B = Unpreserved Bag





# Certificate of Analysis

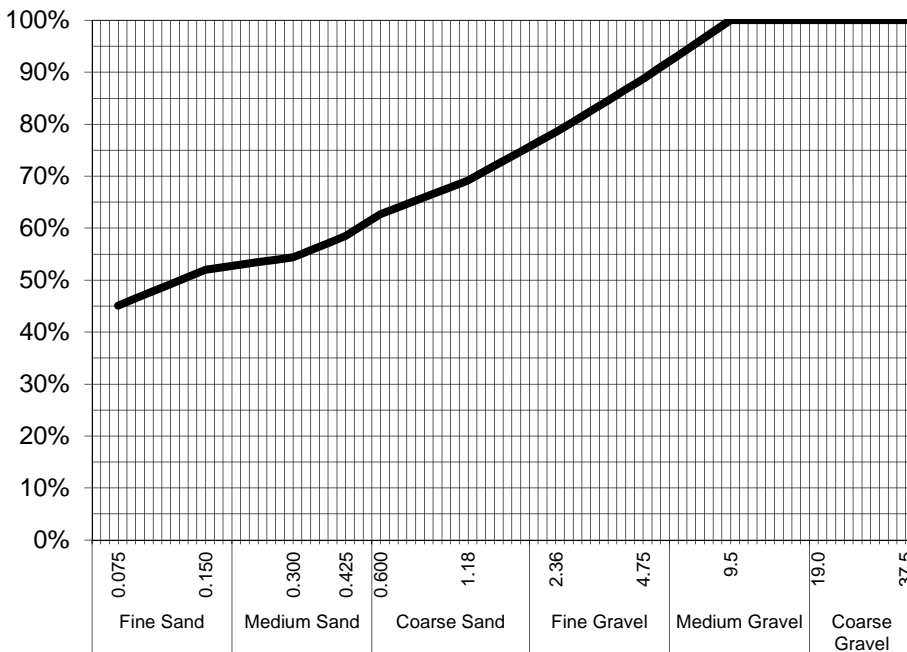
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405660-007 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VJ\_MW04\_1.0

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	89%
2.36	78%
1.18	69%
0.600	63%
0.425	59%
0.300	54%
0.150	52%
0.075	45%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 21-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.1

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

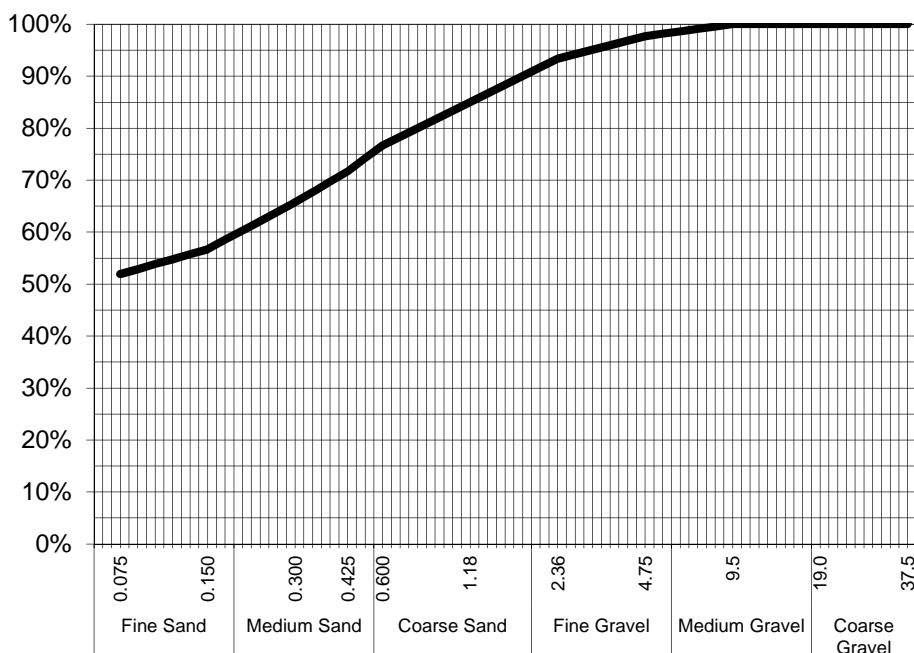
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405660-017 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VD\_MW04\_2.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	98%
2.36	93%
1.18	85%
0.600	77%
0.425	72%
0.300	66%
0.150	57%
0.075	52%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

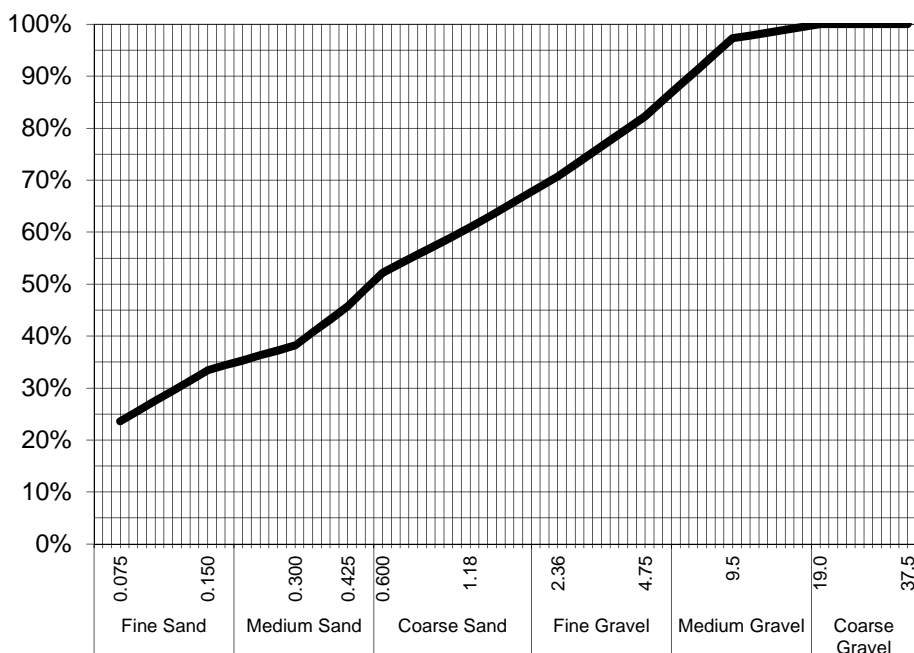
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing      **DATE REPORTED:** 25-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 14-Mar-2014  
**ADDRESS:** Ground Floor      **REPORT NO:** ES1405660-034 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VA\_MW01\_0.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	97%
4.75	82%
2.36	71%
1.18	61%
0.600	52%
0.425	46%
0.300	38%
0.150	33%
0.075	24%

Samples analysed as received.

### Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Sand, gravel and fines

**Test Method:** AS1289.3.6.1

**Analysed:** 21-Mar-14

**Limit of Reporting:** 1%

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405674</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 14-MAR-2014 <b>Issue Date</b> : 24-MAR-2014  <b>No. of samples received</b> : 3 <b>No. of samples analysed</b> : 2
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
-



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VB_MW03_3.9	VB_MW03_1.5	---	---	---
				13-MAR-2014 15:00	13-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405674-001	ES1405674-002	---	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	11.4	10.1	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	2	---	---	---	---
Copper	7440-50-8	5	mg/kg	<5	---	---	---	---
Lead	7439-92-1	5	mg/kg	<5	---	---	---	---
Nickel	7440-02-0	2	mg/kg	<2	---	---	---	---
Zinc	7440-66-6	5	mg/kg	<5	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	---	---	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	---	---	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	---	---	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	---	---	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	---	---	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	---	---	---	---
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	---	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	---	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VB_MW03_3.9	VB_MW03_1.5	---	---	---
				13-MAR-2014 15:00	13-MAR-2014 15:00	---	---	---
				ES1405674-001	ES1405674-002	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	---	---	---	---
Chloromethane	74-87-3	5	mg/kg	<5	---	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	---	---	---	---
Bromomethane	74-83-9	5	mg/kg	<5	---	---	---	---
Chloroethane	75-00-3	5	mg/kg	<5	---	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	---	---	---	---
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	---	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	---	---	---	---
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	---	---	---	---
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	---	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	---	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	---	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	---	---	---	---
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	---	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	---	---	---	---
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	---	---	---	---





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VB_MW03_3.9	VB_MW03_1.5	----	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	----	----	----
				ES1405674-001	ES1405674-002	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time	VB_MW03_3.9	VB_MW03_1.5	---	---	---
13-MAR-2014 15:00	ES1405674-001	ES1405674-002	---	---	---

Compound	CAS Number	LOR	Unit	ES1405674-001	ES1405674-002	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	---	0.5	mg/kg	<b>0.6</b>	---	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	---	0.5	mg/kg	<b>1.2</b>	---	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	10	mg/kg	<10	---	---	---	---
C10 - C14 Fraction	---	50	mg/kg	<50	---	---	---	---
C15 - C28 Fraction	---	100	mg/kg	<100	---	---	---	---
C29 - C36 Fraction	---	100	mg/kg	<100	---	---	---	---
^ C10 - C36 Fraction (sum)	---	50	mg/kg	<50	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	---	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	---	---	---	---
>C16 - C34 Fraction	---	100	mg/kg	<100	---	---	---	---
>C34 - C40 Fraction	---	100	mg/kg	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	---	50	mg/kg	<50	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VB_MW03_3.9	VB_MW03_1.5	----	----	----
				13-MAR-2014 15:00	13-MAR-2014 15:00	----	----	----
				ES1405674-001	ES1405674-002	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	90.3	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.0	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	75.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	77.3	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	99.3	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	111	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	105	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	93.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.8	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.1	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	80.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	81.9	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405674</b>	Page	: 1 of 16
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 14-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 24-MAR-2014
<b>Sampler</b>	: KB	<b>No. of samples received</b>	: 3
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 2
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3347385)</b>									
ES1405628-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.4	11.0	3.6	0% - 50%
ES1405675-010	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	15.9	5.5	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347094)</b>									
ES1405674-001	VB_MW03_3.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	33	148	No Limit
ES1405704-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	41.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	8	34.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	22	33.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347095)</b>									
ES1405674-001	VB_MW03_3.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405704-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525)</b>									
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405738-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776) - continued</b>									
ES1405660-034	Anonymous	EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405525-017	Anonymous	EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405660-034	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405660-034	Anonymous	EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3343282)</b>									
ES1405668-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3343282) - continued</b>									
ES1405668-001	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405668-010	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3343282)</b>									
ES1405668-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	0.6	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3343282) - continued</b>									
ES1405668-001	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	0.6	18.2	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405668-010	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3343283)</b>									
ES1405668-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405668-010	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3343283)</b>									
ES1405668-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405668-010	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3343283) - continued</b>									
ES1405668-010	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405660-034	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3348901)</b>									
ES1405674-002	VB_MW03_1.5	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405956-003	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0115	0.0120	3.8	0% - 20%
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	116	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.4	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.9	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342776)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	80.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	79.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	76.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	75.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342776)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	31.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	95.8	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	83.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	86.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342776)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.6	54	126	
<b>EP074D: Fumigants (QCLot: 3342776)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	70.3	55	133	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3342776) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	82.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	80.8	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	75.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	49.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	67.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	89.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	77.7	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	77.7	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.2	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	79.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	83.4	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	85.5	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	76.5	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	85.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	90.8	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	86.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	139	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	83.0	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.1	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	20.6	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	81.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	48	136	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	128	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	78.1	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	80.7	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	70.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342776)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	85.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	85.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	90.0	60	126	
<b>EP074H: Naphthalene (QCLot: 3342776)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	81.1	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343282)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	96.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	108	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	90.4	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	91.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	91.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	73.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	82.2	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.1	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343282)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	111	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	111	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343282) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.6	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	115	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	100	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	108	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	96.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.1	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	102	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343283)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	84.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	91.0	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.6	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343283)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	91.3	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.7	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	92.5	63	131	
<b>EP080: BTEXN (QCLot: 3342775)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.5	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	77.1	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	73.6	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	77.6	56	138	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
				Low	High		
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>							
ES1405674-001	VB_MW03_3.9	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>							
ES1405674-001	VB_MW03_3.9	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>							
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343282)</b>							
ES1405668-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	121	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	119	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.6	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.3	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343282)</b>							
ES1405668-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	125	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>							
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343283)</b>							
ES1405668-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.9	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.3	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.7	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>							
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343283)</b>							



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343283) - continued</b>								
ES1405668-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.9	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.6	52	132	
<b>EP080: BTEXN (QCLot: 3342775)</b>								
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>								
ES1405674-002	VB_MW03_1.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	56	138	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	86.4	----	70	130	----	----		
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>											
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	----	70	130	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>										
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	----	70	130	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3343282)</b>										
ES1405668-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	116	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	121	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	119	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.6	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	86.3	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3343282)</b>										
ES1405668-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	125	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3343283)</b>										
ES1405668-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.9	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.3	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.7	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3343283)</b>										
ES1405668-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.9	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	71.0	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	61.6	----	52	132	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>										
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>										
ES1405674-001	VB_MW03_3.9	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>										
ES1405674-001	VB_MW03_3.9	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>										
ES1405674-002	VB_MW03_1.5	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	----	56	138	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405674</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: KB	No. of samples received	: 3
Order number	: 0237747	No. of samples analysed	: 2
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VB_MW03_3.9, VB_MW03_1.5	13-MAR-2014	----	----	----	19-MAR-2014	27-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VB_MW03_3.9	13-MAR-2014	19-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VB_MW03_3.9	13-MAR-2014	19-MAR-2014	10-APR-2014	✓	20-MAR-2014	10-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Soil Glass Jar - Unpreserved (EP066) VB_MW03_3.9	13-MAR-2014	21-MAR-2014	27-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VB_MW03_3.9	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP074D: Fumigants</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VB_MW03_3.9	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VB_MW03_3.9	13-MAR-2014	19-MAR-2014	27-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP080) VB_MW03_3.9	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>							
Soil Glass Jar - Unpreserved (EP231) VB_MW03_1.5	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Page : 6 of 7  
Work Order : ES1405674  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405674</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: KB</b>		

#### Dates

Date Samples Received	: 14-MAR-2014	Issue Date	: 17-MAR-2014 13:23
Client Requested Due Date	: 24-MAR-2014	Scheduled Reporting Date	: <b>24-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.1°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 3
Security Seal	: Intact.	No. of samples analysed	: 2

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EA055-103	Moisture Content	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP231	Perfluorooctyl Acids and Sulfonates	SOIL - S-02	8 Metals (incl. Digestion)	SOIL - S-24	TRH/BTEXN/PAH + Phenols
ES1405674-001	13-MAR-2014 15:00	VB_MW03_3.9					✓	✓					✓			✓
ES1405674-002	13-MAR-2014 15:00	VB_MW03_1.5			✓							✓				
ES1405674-003	13-MAR-2014 15:00	VB_MW03_2.9	✓													

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405675</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : HC <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 14  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 14-MAR-2014 <b>Issue Date</b> : 24-MAR-2014  <b>No. of samples received</b> : 13 <b>No. of samples analysed</b> : 11
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB01_3.5	VK_MW01_3.5	VK_MW02_2.5	VK_MW02_3.6	VK_MW03_2.6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-001	ES1405675-003	ES1405675-004	ES1405675-005	ES1405675-006
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.0	16.2	12.4	16.4	15.4
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	3	12	8	6	6
Copper	7440-50-8	5	mg/kg	<5	22	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	7	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	20	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	<5	48	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB01_3.5	VK_MW01_3.5	VK_MW02_2.5	VK_MW02_3.6	VK_MW03_2.6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-001	ES1405675-003	ES1405675-004	ES1405675-005	ES1405675-006
<b>EP074D: Fumigants - Continued</b>								
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB01_3.5	VK_MW01_3.5	VK_MW02_2.5	VK_MW02_3.6	VK_MW03_2.6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-001	ES1405675-003	ES1405675-004	ES1405675-005	ES1405675-006
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB01_3.5	VK_MW01_3.5	VK_MW02_2.5	VK_MW02_3.6	VK_MW03_2.6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-001	ES1405675-003	ES1405675-004	ES1405675-005	ES1405675-006
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB01_3.5	VK_MW01_3.5	VK_MW02_2.5	VK_MW02_3.6	VK_MW03_2.6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-001	ES1405675-003	ES1405675-004	ES1405675-005	ES1405675-006
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.6	88.5	85.2	82.1	89.3
Toluene-D8	2037-26-5	0.1	%	77.6	83.7	74.2	79.5	83.1
4-Bromofluorobenzene	460-00-4	0.1	%	77.7	79.1	72.7	76.2	79.2
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	94.7	98.7	95.6	99.6	95.0
2-Chlorophenol-D4	93951-73-6	0.1	%	104	108	105	108	105
2,4,6-Tribromophenol	118-79-6	0.1	%	97.6	97.2	97.6	96.6	95.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.0	84.7	82.7	83.7	83.0
Anthracene-d10	1719-06-8	0.1	%	93.4	96.0	93.4	95.7	94.3
4-Terphenyl-d14	1718-51-0	0.1	%	89.9	92.2	90.2	91.6	90.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.1	96.8	93.1	88.7	96.6
Toluene-D8	2037-26-5	0.1	%	81.9	88.3	78.1	84.0	87.8
4-Bromofluorobenzene	460-00-4	0.1	%	81.4	82.5	78.3	80.9	83.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VK_MW04_3.0	D01_130314_HC	D02_130314_HC	TRIP SPIKE 3	TRIP BLANK 6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405675-007	ES1405675-009	ES1405675-010	ES1405675-011	ES1405675-012
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	16.2	8.0	15.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	18	3	12	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	26	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	8	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	22	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	54	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_3.0	D01_130314_HC	D02_130314_HC	TRIP SPIKE 3	TRIP BLANK 6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-007	ES1405675-009	ES1405675-010	ES1405675-011	ES1405675-012
<b>EP074D: Fumigants - Continued</b>								
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_3.0	D01_130314_HC	D02_130314_HC	TRIP SPIKE 3	TRIP BLANK 6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-007	ES1405675-009	ES1405675-010	ES1405675-011	ES1405675-012
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_3.0	D01_130314_HC	D02_130314_HC	TRIP SPIKE 3	TRIP BLANK 6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-007	ES1405675-009	ES1405675-010	ES1405675-011	ES1405675-012
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<b>0.6</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>14.8</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<b>1.4</b>	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW04_3.0	D01_130314_HC	D02_130314_HC	TRIP SPIKE 3	TRIP BLANK 6
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405675-007	ES1405675-009	ES1405675-010	ES1405675-011	ES1405675-012
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	7.6	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	2.8	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	10.4	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	27.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.8	95.8	82.8	----	----
Toluene-D8	2037-26-5	0.1	%	72.2	86.6	72.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	76.5	83.3	77.3	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	91.8	100	99.1	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	100	110	109	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	90.7	94.6	95.5	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.6	85.9	85.7	----	----
Anthracene-d10	1719-06-8	0.1	%	91.0	97.9	98.1	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	87.1	93.7	94.2	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.4	104	92.6	85.2	93.9
Toluene-D8	2037-26-5	0.1	%	75.9	91.2	81.3	81.3	95.3
4-Bromofluorobenzene	460-00-4	0.1	%	78.9	89.5	82.0	81.6	90.8



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				<b>TSC</b>	----	----	----	----
				13-MAR-2014 15:00	----	----	----	----
				<b>ES1405675-013</b>	----	----	----	----
<i>Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>					
<b>EP080: BTEXN</b>								
<b>Benzene</b>	71-43-2	0.2	mg/kg	<b>0.6</b>	----	----	----	----
<b>Toluene</b>	108-88-3	0.5	mg/kg	<b>16.8</b>	----	----	----	----
<b>Ethylbenzene</b>	100-41-4	0.5	mg/kg	<b>1.7</b>	----	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	0.5	mg/kg	<b>8.8</b>	----	----	----	----
<b>ortho-Xylene</b>	95-47-6	0.5	mg/kg	<b>3.2</b>	----	----	----	----
<b>Total Xylenes</b>	1330-20-7	0.5	mg/kg	<b>12.0</b>	----	----	----	----
<b>Sum of BTEX</b>	----	0.2	mg/kg	<b>31.1</b>	----	----	----	----
<b>Naphthalene</b>	91-20-3	1	mg/kg	<b>&lt;1</b>	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>92.0</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>94.5</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>87.6</b>	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405675</b>	<b>Page</b>	: 1 of 17
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 14-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 24-MAR-2014
<b>Sampler</b>	: HC	<b>No. of samples received</b>	: 13
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 11
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Pabi Subba  
Shobhna Chandra

#### Position

Senior Organic Chemist  
Metals Coordinator

#### Accreditation Category

Sydney Organics  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3347385)</b>									
ES1405628-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.4	11.0	3.6	0% - 50%
ES1405675-010	D02_130314_HC	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.1	15.9	5.5	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347094)</b>									
ES1405674-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	33	148	No Limit
ES1405704-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	41.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	8	34.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	22	33.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347095)</b>									
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405704-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3342776) - continued</b>									
ES1405660-034	Anonymous	EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405525-017	Anonymous	EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405660-034	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3342776) - continued</b>									
ES1405660-034	Anonymous	EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3342776)</b>									
ES1405525-017	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1405660-034	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342919)</b>									
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3342919) - continued</b>											
ES1405362-002	Anonymous	EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
ES1405362-028	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919)</b>									
		ES1405362-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthylene	208-96-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Anthracene	120-12-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluoranthene	206-44-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Pyrene	129-00-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benz(a)anthracene	56-55-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Chrysene	218-01-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(b)fluoranthene	205-99-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(k)fluoranthene	207-08-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene	50-32-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Dibenz(a,h)anthracene	53-70-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405362-028	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3342919) - continued</b>									
ES1405362-028	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3342917)</b>									
ES1405362-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405362-028	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346720)</b>									
ES1405668-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405744-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405660-034	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3342917)</b>									
ES1405362-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405362-028	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346720)</b>									
ES1405668-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405744-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3342775)</b>									
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405660-034	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3346720)</b>									
ES1405668-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405744-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	116	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.4	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3342776)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	80.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.1	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	77.2	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	79.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	76.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	76.8	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	75.4	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	75.6	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3342776)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	31.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	95.8	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	83.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	86.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3342776)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.6	54	126	
<b>EP074D: Fumigants (QCLot: 3342776)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	70.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	82.6	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	80.8	54	124	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3342776) - continued</b>									
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	75.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	82.6	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	49.9	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	67.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	89.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	77.7	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	77.7	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.2	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	85.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	79.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	83.4	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	85.5	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	76.5	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.8	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	85.4	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	90.8	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	86.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	139	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	71.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.1	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	83.0	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.1	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	20.6	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	81.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.3	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	128	70	128	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776) - continued</b>									
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	78.1	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	76.7	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	80.7	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	78.7	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	70.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	76.4	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3342776)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	85.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	85.4	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	90.0	60	126	
<b>EP074H: Naphthalene (QCLot: 3342776)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	81.1	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	106	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	110	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	108	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	100	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	89.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	91.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	78.4	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	83.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	16.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	115	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	114	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919) - continued</b>									
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	102	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	94.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.4	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	103	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.1	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	94.8	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	94.4	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	84.6	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346720)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	121	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	89.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	93.2	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	102	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346720)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	125	68.4	128	
<b>EP080: BTEXN (QCLot: 3342775)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	89.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.5	62	138	
<b>EP080: BTEXN (QCLot: 3346720)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	107	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	101	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	58	118	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3346720) - continued</b>								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	110	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	109	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.4	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>							
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>							
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>							
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>							
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>							
ES1405362-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775) - continued</b>								
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>								
ES1405362-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346720)</b>								
ES1405668-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	114	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>								
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>								
ES1405362-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346720)</b>								
ES1405668-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	115	70	130	
<b>EP080: BTEXN (QCLot: 3342775)</b>								
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	70	130	
ES1405668-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	99.1	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	99.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	105	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70	130	
	91-20-3	2.5 mg/kg	89.9	70	130			

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3342775)</b>											
ES1405525-017	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	95.9	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.2	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	86.4	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3342776)</b>											
ES1405525-017	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	89.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.2	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3342776)</b>											
ES1405525-017	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	111	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342917)</b>											
ES1405362-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.0	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	77.9	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342917)</b>											
ES1405362-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.4	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	64.1	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342919)</b>											
ES1405362-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	104	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.6	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.2	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342919)</b>											
ES1405362-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	111	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	120	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346720)</b>											
ES1405668-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	114	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346720)</b>											
ES1405668-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	115	----	70	130	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3346720)</b>										
ES1405668-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	99.1	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	99.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	105	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	106	----	70	130	----	----
		EP080: Naphthalene	95-47-6	2.5 mg/kg	89.9	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>										
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>										
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405675</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 24-MAR-2014
Sampler	: HC	No. of samples received	: 13
Order number	: 0237747	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC,	VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	----	----	----	19-MAR-2014	27-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC,	VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	19-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC,	VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	19-MAR-2014	10-APR-2014	✓	20-MAR-2014	10-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC,	VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC,	VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	20-MAR-2014	✓	19-MAR-2014	20-MAR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	26-APR-2014	✓	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓	
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP SPIKE 3, TSC, TRIP BLANK 6,	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	20-MAR-2014	27-MAR-2014	✓	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB01_3.5, VK_MW02_2.5, VK_MW03_2.6, D01_130314_HC, VK_MW01_3.5, VK_MW02_3.6, VK_MW04_3.0, D02_130314_HC	13-MAR-2014	17-MAR-2014	27-MAR-2014	✓	19-MAR-2014	27-MAR-2014	✓	
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP BLANK 6	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	20-MAR-2014	27-MAR-2014	✓	



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405675</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: HC</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 14-MAR-2014</b>	<b>Issue Date</b>	<b>: 17-MAR-2014 11:17</b>
<b>Client Requested Due Date</b>	<b>: 24-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 24-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 4.1°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 13</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 11</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1405675-001	13-MAR-2014 15:00	VK_SB01_3.5		✓			✓
ES1405675-002	13-MAR-2014 15:00	VK_SB01_5.0	✓				
ES1405675-003	13-MAR-2014 15:00	VK_MW01_3.5		✓			✓
ES1405675-004	13-MAR-2014 15:00	VK_MW02_2.5		✓			✓
ES1405675-005	13-MAR-2014 15:00	VK_MW02_3.6		✓			✓
ES1405675-006	13-MAR-2014 15:00	VK_MW03_2.6		✓			✓
ES1405675-007	13-MAR-2014 15:00	VK_MW04_3.0		✓			✓
ES1405675-008	13-MAR-2014 15:00	VK_MW04_5.0	✓				
ES1405675-009	13-MAR-2014 15:00	D01_130314_HC		✓			✓
ES1405675-010	13-MAR-2014 15:00	D02_130314_HC		✓			✓
ES1405675-011	13-MAR-2014 15:00	TRIP SPIKE 3			✓		
ES1405675-012	13-MAR-2014 15:00	TRIP BLANK 6				✓	
ES1405675-013	13-MAR-2014 15:00	TSC			✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** WALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** HC  
**COC emailed to ALS?** ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltacos@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltacos@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:** 64  
**CONTACT PH:** 0401 776 280  
**SAMPLER MOBILE:** 0408207057  
**RECEIVED BY:** Ravi  
**DATE/TIME:** 19/3 19:00  
**RELINQUISHED BY:** W. Campbell  
**DATE/TIME:** 19/3 19:00

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
1	VK-SB01-3.5	13-3-14	S	S/A	1 x 5	Ultra Trace Metals	
2	VK-SB01-5.0		S			Ultra Trace PAH	HOLD
3	VK-MW01-3.5		S			EC Saturated Paste	
4	VK-MW02-2.5		S			PSD sieve / TOC	
5	VK-MW02-3.6		S			pH/CEC	
6	VK-MW03-2.6		S			PFS/PFOA	
7	VK-MW04-3.0		S			PCB	
8	VK-MW04-5.0		S			VOC	
9	DO1-130314-HC		S			ASBESTOS	
10	DO2-130314-HC		S			PHENOLS (S-24)	
11	TRIP SPIKE 3		S			13 METALS (S-3) + B, Mo, Tl, Se	
12	TRIP BLANK 3		S			8 METALS (S-2)	
<b>TOTAL</b>							



Telephone : +61-2-8784 8555

Environmental Division  
Sydney  
Work Order  
**ES1405675**

HOLD

15ae  
L 5ae

BTEX  
BTEX + TPH

Water Container Codes: F = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405736</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : <b>SYMPHONY DELTACOAST</b> <b>Address</b> : <b>GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b>  <b>E-mail</b> : <b>symphony.deltacoast@erm.com</b> <b>Telephone</b> : <b>+61 02 8584 8888</b> <b>Facsimile</b> : <b>+61 02 8584 8800</b> <b>Project</b> : <b>VALES POINT POWER STATION</b> <b>Order number</b> : <b>0237747</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>CM</b> <b>Site</b> : <b>----</b>  <b>Quote number</b> : <b>SY/050/14 V3</b>	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 17-MAR-2014 <b>Issue Date</b> : 25-MAR-2014  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 5
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_SB03_2.0	VJ_SB03_2.0	VJ_MW02_4.0	VJ_SB02_3.0	VJ_SB04_3.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405736-001	ES1405736-002	ES1405736-003	ES1405736-004	ES1405736-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.2	17.3	18.6	12.9	15.0
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	<10	10	<10	20
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	35	8	5	2
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	6	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	6	<5	<5	10
Manganese	7439-96-5	5	mg/kg	----	<5	32	<5	<5
Molybdenum	7439-98-7	2	mg/kg	----	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	72	7	<5	<5
Zinc	7440-66-6	5	mg/kg	7	<5	7	<5	<5
Thallium	7440-28-0	5	mg/kg	----	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_SB03_2.0	VJ_SB03_2.0	VJ_MW02_4.0	VJ_SB02_3.0	VJ_SB04_3.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405736-001	ES1405736-002	ES1405736-003	ES1405736-004	ES1405736-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_SB03_2.0	VJ_SB03_2.0	VJ_MW02_4.0	VJ_SB02_3.0	VJ_SB04_3.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405736-001	ES1405736-002	ES1405736-003	ES1405736-004	ES1405736-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	83.2	82.3	86.5	77.8	89.0
2-Chlorophenol-D4	93951-73-6	0.1	%	79.5	76.2	82.2	71.9	86.6
2,4,6-Tribromophenol	118-79-6	0.1	%	89.0	87.0	83.9	85.0	81.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.7	98.6	94.7	96.2	98.3
Anthracene-d10	1719-06-8	0.1	%	110	107	101	106	106
4-Terphenyl-d14	1718-51-0	0.1	%	107	108	103	105	104
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.6	94.7	87.1	97.5	92.3
Toluene-D8	2037-26-5	0.1	%	88.1	90.2	82.5	89.0	87.2
4-Bromofluorobenzene	460-00-4	0.1	%	85.5	85.4	84.0	91.7	87.6



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405736</b>	<b>Page</b>	: 1 of 11
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: SYMPHONY DELTACOAST</b>	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	<b>: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: symphony.deltacoast@erm.com</b>	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	: 17-MAR-2014
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	: 25-MAR-2014
<b>Sampler</b>	<b>: CM</b>	<b>No. of samples received</b>	: 6
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	: 5
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3347386)</b>									
ES1405728-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.8	22.4	2.7	0% - 20%
ES1405738-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.2	7.7	6.2	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347094)</b>									
ES1405674-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	40	126	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	33	148	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1405704-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	160	190	14.6	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	41.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	8	34.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	22	33.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	6	21.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	34	38	12.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347095)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347095) - continued</b>									
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405704-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3345529)</b>									
ES1405736-001	VU_SB03_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405742-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3345529)</b>									
ES1405736-001	VU_SB03_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3345529) - continued</b>									
ES1405736-001	VU_SB03_2.0	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405742-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344790)</b>									
ES1405738-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405738-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3345528)</b>									
ES1405736-001	VU_SB03_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405742-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	230	230	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	120	110	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344790)</b>									
ES1405738-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405738-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3345528)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3345528) - continued</b>										
ES1405736-001	VU_SB03_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405742-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	310	310	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3344790)</b>										
ES1405738-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405738-008	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	115	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	116	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	108	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	106	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	111	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	122	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	99.3	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.4	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	101	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	96.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	102	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	83.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	98.7	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	97.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	102	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	95.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	92.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	32.6	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345529)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	108	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345529) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	108	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	111	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	103	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	94.2	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	108	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	96.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	75.1	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	76.1	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.5	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	90.5	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	95.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.5	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.8	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	95.4	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.3	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	97.4	63	131	
<b>EP080: BTEXN (QCLot: 3344790)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	67.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	71.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	68.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	72.5	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	72.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.7	62	138	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>							
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>							
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>							
ES1405736-001	VU_SB03_2.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	69.7	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345529)</b>							
ES1405736-001	VU_SB03_2.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.0	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>							
ES1405738-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>							
ES1405736-001	VU_SB03_2.0	EP071: C10 - C14 Fraction	----	640 mg/kg	82.2	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>							
ES1405738-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>							
ES1405736-001	VU_SB03_2.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.8	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.2	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.3	52	132
<b>EP080: BTEXN (QCLot: 3344790)</b>							
ES1405738-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	97.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	98.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.3	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3344790) - continued</b>							
ES1405738-005	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.7	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	100	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.9	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>											
ES1405738-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>											
ES1405738-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3344790)</b>											
ES1405738-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	97.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	100	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.9	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345528)</b>											
ES1405736-001	VU_SB03_2.0	EP071: C10 - C14 Fraction	----	640 mg/kg	82.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345528)</b>											
ES1405736-001	VU_SB03_2.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	96.8	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.3	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345529)</b>											
ES1405736-001	VU_SB03_2.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.8	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.0	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	69.7	----	20	130	----	----	



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345529)</b>										
ES1405736-001	VU_SB03_2.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>										
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	107	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>										
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405736</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: CM	No. of samples received	: 6
Order number	: 0237747	No. of samples analysed	: 5
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	----	----	----	19-MAR-2014	28-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	19-MAR-2014	10-SEP-2014	✓	20-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	19-MAR-2014	11-APR-2014	✓	20-MAR-2014	11-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP071) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	18-MAR-2014	28-MAR-2014	✓	20-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VU_SB03_2.0, VJ_MW02_4.0, VJ_SB04_3.0	VJ_SB03_2.0, VJ_SB02_3.0	14-MAR-2014	18-MAR-2014	28-MAR-2014	✓	20-MAR-2014	28-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405736**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : SYMPHONY DELTACOAST</b>  <b>Address : GRND FLOOR, 33 SAUNDERS STREET</b>  <b>PYRMONT NSW AUSTRALIA 2009</b></p> <p><b>E-mail : symphony.deltacoast@erm.com</b>  <b>Telephone : +61 02 8584 8888</b>  <b>Facsimile : +61 02 8584 8800</b></p> <p><b>Project : VALES POINT POWER STATION</b>  <b>Order number : 0237747</b>  <b>C-O-C number : ----</b>  <b>Site : ----</b>  <b>Sampler : CM</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b>  <b>Address : 277-289 Woodpark Road Smithfield</b>  <b>NSW Australia 2164</b></p> <p><b>E-mail : Barbara.Hanna@alsglobal.com</b>  <b>Telephone : +61 2 8784 8555</b>  <b>Facsimile : +61 2 8784 8555</b></p> <p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 17-MAR-2014</b></p> <p><b>Client Requested Due Date : 25-MAR-2014</b></p>	<p><b>Issue Date : 18-MAR-2014 07:33</b></p> <p><b>Scheduled Reporting Date : <b>25-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.1°C - Ice present</b></p> <p><b>No. of samples received : 6</b></p> <p><b>No. of samples analysed : 5</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EG005T (solids)	Total Metals by ICP-AES	SOIL - S-03	15 Metals (NEPM 2013 Suite - incl.	SOIL - S-24	TRH/BTEXN/PAH + Phenols	SOIL - S-27	TRH/BTEXN/PAH/Phenols/8Metals
ES1405736-001	14-MAR-2014 15:00	VU_SB03_2.0										✓
ES1405736-002	14-MAR-2014 15:00	VJ_SB03_2.0		✓	✓	✓						
ES1405736-003	14-MAR-2014 15:00	VJ_MW02_4.0		✓	✓	✓						
ES1405736-004	14-MAR-2014 15:00	VJ_SB02_3.0		✓	✓	✓						
ES1405736-005	14-MAR-2014 15:00	VJ_SB04_3.0		✓	✓	✓						
ES1405736-006	14-MAR-2014 15:00	VJ_SB01_2.0	✓									

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

CLADELIDE 21 Burns Road, Ploors, SA 5095  
Ph: 08 9359 4890 E: als@als.com.au  
CUBISMANE 32 Sturt Street, Sturtford QLD 4059  
Ph: 07 3243 7292 E: als@als.com.au  
GILGASTONE 46 Collyermeach Drive, Chino, QLD 4680  
Ph: 07 7471 9600 E: als@als.com.au

DMACKAY 76 Hapsburg Road Mackay QLD 4740  
Ph: 07 4944 0177 E: dmackay@als.com.au  
DUNE BOURNE 24 Westall Road, Springside VIC 3171  
Ph: 03 0549 9600 E: als@als.com.au  
CHALDSLEE 27 Saffery Road, Mulgrave VIC 3207  
Ph: 02 6372 6728 E: maldine.m@als.com.au

ENNEWCASTLE 5 Ross Court Road, Westhoek NSW 2304  
Ph: 02 4993 9435 E: samples.ennewcastle@als.com.au  
DUNOWRA 413 Geary Place North Ryde NSW 2111  
Ph: 024428 2063 E: novon@als.com.au  
DPERTH 10 Hood Way Midvale WA 6050  
Ph: 08 9209 7655 E: samples.perth@als.com.au

SYDNEY 277 289 Woodpark Road, Smithfield NSW 2154  
Ph: 02 974 0552 E: als@als.com.au  
DTCRAVALLIE 14-15 Davies Court, Boxy QLD 4518  
Ph: 07 4709 0600 E: lawless@als.com.au  
DWOOLONGONG 90 Korry Street, Wollongong NSW 2500  
Ph: 02 4225 3125 E: perlemberg@als.com.au


**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** CHRIS MASTERS  
**COC emailed to ALS?** ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.della.coast@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
 Ultra Trace Organics)  
**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0439130577  
**EDD FORMAT (or default):**

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal Intact?  YES  NO  
 Free to be analysed by the client on receipt?  YES  NO  
 Random Sample Temperature on Receipt?  YES  NO  
 On Receipt?  YES  NO

**RELINQUISHED BY:** [Signature] **RECEIVED BY:**  
**DATE/TIME:** 19:00 17/3 **DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	CONTAINER INFORMATION (refer to)	TOTAL CONTAINERS	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Tl, Se	TRP/HTX/PAH PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	NW-SB03-2.0	14/3/14	S	(1 Jar)		1	X	X	X								Environmental Division Sydney Work Order <b>ES1405736</b>  Telephone : + 61-2-8784 8556
2	VJ-SB03-2.0	14/3/14	S	(1 Jar)		1	X	X	X								
3	VJ-MW02-4.0	14/3/14	S	(1 Jar)		1	X	X	X								
4	VJ-SB02-3.0	14/3/14	S	(1 Jar)		1	X	X	X								
5	VJ-SB04-3.0	14/3/14	S	(1 Jar)		1	X	X	X								
	VJ-SB01-2.0	14.3.14	S	(1 Jar)		1											
			W														
			W														
			W														
			W														
			W														
			W														
						<b>TOTAL</b>											

**ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to allow suite price)**  
 Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial (HCl) Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sodium Bisulfate Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405737</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: KB	No. of samples received	: 10
Site	: ----	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.5	20.3	26.4	----	26.1
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----
Asbestos Type	1332-21-4	-	--	----	----	----	-	----
Sample weight (dry)	----	0.01	g	----	----	----	875	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	C.OWLER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	0.875	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	----	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	----	----	No	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	8
Barium	7440-39-3	10	mg/kg	<10	----	30	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	----	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	4	3	3	----	6
Cobalt	7440-48-4	2	mg/kg	<2	----	<2	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	<5
Lead	7439-92-1	5	mg/kg	<5	<5	6	----	5
Manganese	7439-96-5	5	mg/kg	<5	----	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	<2	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	<2
Selenium	7782-49-2	5	mg/kg	<5	----	<5	----	----
Vanadium	7440-62-2	5	mg/kg	10	----	<5	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	----	6
Thallium	7440-28-0	5	mg/kg	<5	----	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	<0.1	----	<0.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EP074G: Trihalomethanes - Continued</b>								
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	2.7	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	2.7	----	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	84.4
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	97.9	----	----	82.7
Toluene-D8	2037-26-5	0.1	%	----	91.0	----	----	82.9
4-Bromofluorobenzene	460-00-4	0.1	%	----	104	----	----	94.1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MV04_5.1	VK_MW05_6.0	VJ_MW03_4.0	VS_MW05_0.1	VS_MW05_0.6
				14-MAR-2014 10:00	14-MAR-2014 14:00	14-MAR-2014 10:30	14-MAR-2014 17:00	14-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1405737-001	ES1405737-002	ES1405737-003	ES1405737-004	ES1405737-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	90.8	98.1	103	----	103
2-Chlorophenol-D4	93951-73-6	0.1	%	82.9	88.1	93.0	----	93.7
2,4,6-Tribromophenol	118-79-6	0.1	%	90.6	80.7	98.6	----	90.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	88.0	98.8	102	----	94.3
Anthracene-d10	1719-06-8	0.1	%	83.3	86.1	86.5	----	82.7
4-Terphenyl-d14	1718-51-0	0.1	%	86.9	88.7	85.3	----	86.2
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	89.8	99.6	81.4	----	83.9
Toluene-D8	2037-26-5	0.1	%	76.4	88.7	78.0	----	81.0
4-Bromofluorobenzene	460-00-4	0.1	%	74.3	115	92.7	----	103



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
				14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	6.5	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	25.2	25.7	----	16.8	13.9
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	4.9	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	2.2	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.2	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.9	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	8.3	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	<0.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	10	----	----	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	----	----	50
Beryllium	7440-41-7	1	mg/kg	----	----	----	----	<1
Boron	7440-42-8	50	mg/kg	----	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg	8	----	----	8	4
Cobalt	7440-48-4	2	mg/kg	----	----	----	----	<2
Copper	7440-50-8	5	mg/kg	<5	----	----	7	<5
Lead	7439-92-1	5	mg/kg	6	----	----	<5	<5
Manganese	7439-96-5	5	mg/kg	----	----	----	----	<5
Molybdenum	7439-98-7	2	mg/kg	----	----	----	----	<2
Nickel	7440-02-0	2	mg/kg	2	----	----	<2	<2
Selenium	7782-49-2	5	mg/kg	----	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	----	----	----	----	10
Zinc	7440-66-6	5	mg/kg	6	----	----	6	5
Thallium	7440-28-0	5	mg/kg	----	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	<0.1	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.26	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
				14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
				14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
				14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	<b>1.2</b>	<b>1.2</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
				14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	----	----	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	<b>84.5</b>	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>91.7</b>	----	----	<b>95.6</b>	----
Toluene-D8	2037-26-5	0.1	%	<b>93.8</b>	----	----	<b>90.7</b>	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	DUP_14032014_KB	VS_MW05_0.6	VS_MW05_0.5	VK_MW05_6.8	VJ_MW03_2.1
Client sampling date / time	14-MAR-2014 15:00	14-MAR-2014 17:00	14-MAR-2014 17:00	14-MAR-2014 14:00	14-MAR-2014 10:30
	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010

Compound	CAS Number	LOR	Unit	ES1405737-006	ES1405737-007	ES1405737-008	ES1405737-009	ES1405737-010
<b>EP074S: VOC Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	103	----	----	99.5	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	105	----	----	105	94.8
2-Chlorophenol-D4	93951-73-6	0.1	%	89.7	----	----	92.5	92.8
2,4,6-Tribromophenol	118-79-6	0.1	%	87.8	----	----	84.4	84.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.6	----	----	98.8	98.1
Anthracene-d10	1719-06-8	0.1	%	85.8	----	----	87.1	86.8
4-Terphenyl-d14	1718-51-0	0.1	%	87.8	----	----	88.5	91.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.4	----	----	97.0	93.3
Toluene-D8	2037-26-5	0.1	%	91.5	----	----	88.6	77.6
4-Bromofluorobenzene	460-00-4	0.1	%	112	----	----	111	73.2

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VS_MW05_0.1 - 14-MAR-2014 17:00	Pale brown clay soil with some brown rocks plus some fine quartz grains and a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405737</b>	Page	: 1 of 18
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: KB	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Di-An Dao		Newcastle - Asbestos
Kim McCabe	Senior Inorganic Chemist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
		Sydney Organics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3351323)</b>									
ES1405662-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.0	4.8	4.1	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3355526)</b>									
ES1405737-003	VJ_MW03_4.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.4	26.5	0.0	0% - 20%
ES1405742-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.6	23.3	1.3	0% - 20%
<b>ED007: Exchangeable Cations (QC Lot: 3347191)</b>									
ES1405660-007	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.1	3.0	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.6	3.5	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359156)</b>									
ES1405737-001	VJ_MV04_5.1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	6	55.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	18	54.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405740-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	2	41.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359156) - continued</b>									
ES1405740-004	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	6	34.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	30	24	20.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	19	9	73.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	55	39	33.6	0% - 50%
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3359157)</b>									
ES1405737-001	VJ_MV04_5.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405740-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3349606)</b>									
ES1405737-008	VS_MW05_0.5	EP003: Total Organic Carbon	----	0.02	%	0.26	0.18	37.2	0% - 50%
ES1405742-006	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.27	0.27	0.0	0% - 50%
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525)</b>									
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405738-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3346715) - continued</b>									
ES1405661-002	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3346715) - continued</b>											
ES1405661-002	Anonymous	EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405737-005	VS_MW05_0.6	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
		<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3346715)</b>									
		ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: Bromobenzene	108-86-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3346715) - continued</b>									
ES1405661-002	Anonymous	EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	VS_MW05_0.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346937)</b>									
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405804-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346937) - continued</b>									
ES1405804-008	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346937)</b>									
ES1405804-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405804-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346937) - continued</b>										
ES1405804-008	Anonymous	EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405737-005	VS_MW05_0.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346936)</b>										
ES1405804-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	170	130	24.8	No Limit	
ES1405804-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405737-005	VS_MW05_0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346936)</b>										
ES1405804-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	150	120	23.2	No Limit	
ES1405804-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405737-005	VS_MW05_0.6	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3346714) - continued</b>									
ES1405737-005	VS_MW05_0.6	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3348902)</b>									
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405879-008	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3347191)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	100	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	102	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.0	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.9	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	98.6	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	105	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	102	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	108	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	102	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	91.1	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	107	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	72.2	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.6	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3349606)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	29.99 %	104	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.9	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3346715)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	73.6	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	77.3	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.5	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	74.3	63	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3346715) - continued</b>									
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	78.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	73.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	68.9	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	74.5	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	73.7	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3346715)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	40.2	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	122	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	89.6	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	89.3	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3346715)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	73.0	54	126	
<b>EP074D: Fumigants (QCLot: 3346715)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	82.6	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	84.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	76.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	65.5	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	79.8	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	50.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	71.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	80.3	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	65.9	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	88.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	76.0	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	78.5	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	72.2	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	69.0	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	132	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715) - continued</b>									
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	84.9	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	82.0	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.8	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	79.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	85.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	84.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	81.0	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	86.0	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	89.6	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.3	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	65.5	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	83.1	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	77.7	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	78.3	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	93.6	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	65.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.8	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	65.8	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	84.4	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	80.5	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	81.4	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	74.6	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	75.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	77.8	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	76.7	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	67.4	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	70.7	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3346715)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	80.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	82.0	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	72.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	77.6	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	111	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.7	60.3	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937) - continued</b>									
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	112	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	# 113	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	108	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	107	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	75.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	79.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	83.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	83.0	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	89.1	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	87.2	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	110	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	105	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	107	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	97.3	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	71.8	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	93.4	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	99.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	72.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	101	63	131	
<b>EP080: BTEXN (QCLot: 3346714)</b>									



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3346714) - continued</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	67.7	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	79.8	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	71.1	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	74.0	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	75.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	78.7	62	138
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	79.1	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	86.4	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	85.8	56	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>							
ES1405737-001	VJ_MV04_5.1	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	105	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>							
ES1405737-001	VJ_MV04_5.1	EG035T: Mercury	7439-97-6	5 mg/kg	102	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>							
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>							
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	87.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>							
ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.8	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>								
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	112	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.5	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.3	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.2	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>								
ES1405804-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>								
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>								
ES1405804-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.5	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	99.0	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.0	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>								
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>								
ES1405804-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.8	52	132	
<b>EP080: BTEXN (QCLot: 3346714)</b>								
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	81.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.2	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	71.7	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>								
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	56	138	

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>											
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>											
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.5	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>											
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3346714)</b>											
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	81.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.2	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.7	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>											
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	87.5	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.3	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>											
ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.8	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>											
ES1405804-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.5	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	99.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.0	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>											
ES1405804-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.8	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>											
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	112	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.5	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.2	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>											
ES1405804-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.7	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>											
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	----	54	146	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3348902) - continued</b>										
ES1405660-034	Anonymous	EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359156)</b>										
ES1405737-001	VJ_MV04_5.1	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	105	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359157)</b>										
ES1405737-001	VJ_MV04_5.1	EG035T: Mercury	7439-97-6	5 mg/kg	102	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405737</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: KB	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
<b>Soil Glass Jar - Unpreserved (EA002)</b> VS_MW05_0.5	14-MAR-2014	21-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VS_MW05_0.6, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	----	----	----	24-MAR-2014	28-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VS_MW05_0.1	14-MAR-2014	---	10-SEP-2014	----	26-MAR-2014	22-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED007)</b> VS_MW05_0.5	14-MAR-2014	19-MAR-2014	11-APR-2014	✓	20-MAR-2014	11-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	26-MAR-2014	10-SEP-2014	✓	26-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	26-MAR-2014	11-APR-2014	✓	27-MAR-2014	11-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VS_MW05_0.5	14-MAR-2014	20-MAR-2014	11-APR-2014	✓	22-MAR-2014	11-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VS_MW05_0.6, DUP_14032014_KB	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW05_6.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	21-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VJ_MV04_5.1, VK_MW05_6.0, VJ_MW03_4.0, VS_MW05_0.6, DUP_14032014_KB, VK_MW05_6.8, VJ_MW03_2.1	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	21-MAR-2014	28-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP231)</b> VS_MW05_0.6	14-MAR-2014	20-MAR-2014	10-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	3997942-007	----	2,4-Dichlorophenol	120-83-2	113 %	68-112%	Recovery greater than upper control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report****Work Order : ES1405737**

Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	Page	: 1 of 3
Order number	: 0237747	Quote number	: ES2014ENVRES0385 (SY/050/14 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KB		

**Dates**

Date Samples Received	: 17-MAR-2014	Issue Date	: 18-MAR-2014 10:06
Client Requested Due Date	: 27-MAR-2014	Scheduled Reporting Date	: <b>27-MAR-2014</b>

**Delivery Details**

Mode of Delivery	: Carrier	Temperature	: 4.1°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 10
Security Seal	: Intact.	No. of samples analysed	: 10

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA200N	SOIL - ED007 Def Asbestos Quantitation by WANEPM Guidelines - CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS
ES1405737-001	14-MAR-2014 10:00	VJ_MV04_5.1					✓		
ES1405737-003	14-MAR-2014 10:30	VJ_MW03_4.0					✓		
ES1405737-004	14-MAR-2014 17:00	VS_MW05_0.1				✓			
ES1405737-005	14-MAR-2014 17:00	VS_MW05_0.6							✓
ES1405737-006	14-MAR-2014 15:00	DUP_14032014_KB							✓
ES1405737-007	14-MAR-2014 17:00	VS_MW05_0.6		✓					
ES1405737-008	14-MAR-2014 17:00	VS_MW05_0.5	✓		✓		✓	✓	
ES1405737-010	14-MAR-2014 10:30	VJ_MW03_2.1					✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEXNI/PAH + Phenols	SOIL - S-27 TRH/BTEXNI/PAH/Phenols/8Metals
ES1405737-001	14-MAR-2014 10:00	VJ_MV04_5.1			✓	✓	
ES1405737-002	14-MAR-2014 14:00	VK_MW05_6.0	✓				✓
ES1405737-003	14-MAR-2014 10:30	VJ_MW03_4.0			✓	✓	
ES1405737-005	14-MAR-2014 17:00	VS_MW05_0.6	✓				✓
ES1405737-006	14-MAR-2014 15:00	DUP_14032014_KB	✓				✓
ES1405737-007	14-MAR-2014 17:00	VS_MW05_0.6		✓			
ES1405737-009	14-MAR-2014 14:00	VK_MW05_6.8	✓				✓
ES1405737-010	14-MAR-2014 10:30	VJ_MW03_2.1			✓	✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## *Requested Deliverables*

### **SYMPHONY DELTACOAST**

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### **THE ACCOUNTS PAYABLE**

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405738</b>	Page	: 1 of 25
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: GP	No. of samples received	: 21
Site	: ----	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	8.0	9.5	15.0
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	No	----	----	----
Asbestos Type	1332-21-4	-	--	Ch	-	----	----	----
Sample weight (dry)	----	0.01	g	732	1100	----	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	C.OWLER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.732	1.10	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	0.8	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	0.02	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	<10	<10	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	7	6	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	----	<5	<5	----
Lead	7439-92-1	5	mg/kg	----	----	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	----	21	9	----
Molybdenum	7439-98-7	2	mg/kg	----	----	<2	<2	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	23	20	----
Zinc	7440-66-6	5	mg/kg	----	----	7	<5	----
Thallium	7440-28-0	5	mg/kg	----	----	<5	<5	----
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	<5
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Chromium	7440-47-3	2	mg/kg	----	----	----	----	6
Copper	7440-50-8	5	mg/kg	----	----	----	----	<5
Lead	7439-92-1	5	mg/kg	----	----	----	----	6
Nickel	7440-02-0	2	mg/kg	----	----	----	----	<2
Zinc	7440-66-6	5	mg/kg	----	----	----	----	8
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<b>3.2</b>
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<b>0.6</b>
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<b>1.1</b>	<b>0.9</b>	<b>9.6</b>
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<b>0.9</b>
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	<b>6.1</b>
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	<b>4.5</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	<b>1.9</b>
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	<b>1.8</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	<0.5	<b>0.8</b>
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	0.6
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	1.1	0.9	30.0
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	0.9
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.6	0.6	1.2
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.2	1.2	1.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	90
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	300	710
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	270	280
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	570	1080
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	<50	<50	150
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	540	840
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	180
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	540	1170
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	150
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	<1

### EP074S: VOC Surrogates



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_0.1	VK_MW06_0.2	VK_MW06_0.5	VK_MW07_1.0	VJ_MW08_1.0
				14-MAR-2014 11:20	14-MAR-2014 09:30	14-MAR-2014 09:40	14-MAR-2014 11:35	14-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405738-001	ES1405738-002	ES1405738-003	ES1405738-004	ES1405738-005
<b>EP074S: VOC Surrogates - Continued</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	73.7
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	75.7
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	71.6
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	80.8	95.4	83.6
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	83.3	115	91.8
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	92.0	89.6	70.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	102	94.9	91.0
Anthracene-d10	1719-06-8	0.1	%	----	----	104	101	94.8
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	104	88.4	108
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	94.1	81.1	79.9
Toluene-D8	2037-26-5	0.1	%	----	----	99.5	73.4	78.3
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	104	74.0	77.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	7.2	15.1	5.7	8.9	17.7
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	<5
Barium	7440-39-3	10	mg/kg	----	----	----	----	<10
Beryllium	7440-41-7	1	mg/kg	----	----	----	----	<1
Boron	7440-42-8	50	mg/kg	----	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	----	12
Cobalt	7440-48-4	2	mg/kg	----	----	----	----	2
Copper	7440-50-8	5	mg/kg	----	----	----	----	<5
Lead	7439-92-1	5	mg/kg	----	----	----	----	<5
Manganese	7439-96-5	5	mg/kg	----	----	----	----	20
Molybdenum	7439-98-7	2	mg/kg	----	----	----	----	2
Nickel	7440-02-0	2	mg/kg	----	----	----	----	3
Selenium	7782-49-2	5	mg/kg	----	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	----	----	----	----	24
Zinc	7440-66-6	5	mg/kg	----	----	----	----	<5
Thallium	7440-28-0	5	mg/kg	----	----	----	----	<5
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	4	7	4	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	5	<5	<5	<5	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	----
Zinc	7440-66-6	5	mg/kg	8	<5	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	3.3	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	9.0	<0.5	1.2	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	4.2	<0.5	0.7	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	2.7	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	1.7	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	2.1	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.2	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	25.4	<0.5	1.9	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	1.1	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.4	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	17	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	110	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	860	<100	120	<100	<100
C29 - C36 Fraction	----	100	mg/kg	340	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	1310	<50	120	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	21	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	21	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	200	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	1010	<100	160	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	160	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	1370	<50	160	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	200	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	75.6	77.3	72.9	81.7	----
Toluene-D8	2037-26-5	0.1	%	78.5	78.4	75.8	77.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	72.4	77.0	72.5	80.0	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	101	118	91.8	106	107
2-Chlorophenol-D4	93951-73-6	0.1	%	98.7	120	103	106	107
2,4,6-Tribromophenol	118-79-6	0.1	%	90.6	59.3	87.9	104	90.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	90.1	108	92.7	113	95.6
Anthracene-d10	1719-06-8	0.1	%	95.2	114	95.6	100	104
4-Terphenyl-d14	1718-51-0	0.1	%	104	107	92.8	95.9	99.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.2	84.1	79.1	88.6	81.0



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW07_0.1	VJ_MW09_0.5	VJ_MW01_0.2	VJ_MW10_1.0	VK_MW05_1.5
				14-MAR-2014 14:40	14-MAR-2014 13:45	14-MAR-2014 10:20	14-MAR-2014 10:50	14-MAR-2014 09:15
Compound	CAS Number	LOR	Unit	ES1405738-006	ES1405738-007	ES1405738-008	ES1405738-009	ES1405738-010
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	80.9	83.0	78.5	82.4	89.8
4-Bromofluorobenzene	460-00-4	0.1	%	75.4	83.1	81.0	82.8	93.0



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.7	----	14.9	15.5	26.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	333	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	C.OWLER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.333	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	21	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	65	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	12
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Chromium	7440-47-3	2	mg/kg	----	----	5	9	8
Copper	7440-50-8	5	mg/kg	----	----	14	<5	<5
Lead	7439-92-1	5	mg/kg	----	----	5	5	<5
Nickel	7440-02-0	2	mg/kg	----	----	4	2	2
Zinc	7440-66-6	5	mg/kg	----	----	19	12	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	----	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	----	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	----	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW06_0.5	VS_MW04_0.2	VS_MW04_1.0	VS_MW03_1.0	VS_MW03_4.0
				14-MAR-2014 16:45	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405738-013	ES1405738-014	ES1405738-015	ES1405738-016	ES1405738-017
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
PFOA	335-67-1	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	<0.005	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	78.1	85.6	92.4
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	88.4	73.0	75.5
Toluene-D8	2037-26-5	0.1	%	----	----	87.3	81.5	80.8
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	84.4	79.5	75.1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	109	----	88.4	107	114
2-Chlorophenol-D4	93951-73-6	0.1	%	110	----	88.1	107	114
2,4,6-Tribromophenol	118-79-6	0.1	%	87.4	----	88.8	80.5	74.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	95.9	----	100	91.0	105
Anthracene-d10	1719-06-8	0.1	%	106	----	96.9	102	114
4-Terphenyl-d14	1718-51-0	0.1	%	114	----	90.8	97.7	123
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.2	----	96.4	79.9	82.2
Toluene-D8	2037-26-5	0.1	%	79.1	----	92.4	77.5	76.6
4-Bromofluorobenzene	460-00-4	0.1	%	79.2	----	89.5	80.0	79.8



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW03_0.2	TRIP SPIKE	TRIP BLANK	TSC	----
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405738-018	ES1405738-019	ES1405738-020	ES1405738-021	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	381	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.381	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	0.4	<0.2	0.5	----
Toluene	108-88-3	0.5	mg/kg	----	11.3	<0.5	12.7	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	1.2	<0.5	1.3	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	5.8	<0.5	6.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	2.3	<0.5	2.4	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	8.1	----	8.9	----
^ Sum of BTEX	----	0.2	mg/kg	----	21.0	----	23.4	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	85.0	99.8	92.1	----
Toluene-D8	2037-26-5	0.1	%	----	77.3	96.9	87.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	79.2	91.8	86.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_140314\_GP

---

---

---

---

Client sampling date / time

14-MAR-2014 16:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405738-012	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
-------------	---------	-----	------	------	-----	-----	-----	-----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_140314\_GP

---

---

---

---

Client sampling date / time

14-MAR-2014 16:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405738-012	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_140314\_GP

----

----

----

----

Client sampling date / time

14-MAR-2014 16:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1405738-012	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	34.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	71.1	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	19.9	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	81.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	65.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	71.0	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.4	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	95.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	87.6	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VK_MW07_0.1 - 14-MAR-2014 11:20	Dark grey-brown soil with plenty of slag and coal grains plus a trace of vegetation plus one fragment of bonded asbestos cement sheeting approximately 17 x 12 x 5mm
EA200: Description	VK_MW06_0.2 - 14-MAR-2014 09:30	Pale brown clay soil with some small brown rocks plus a trace of vegetation
EA200: Description	VS_MW04_0.2 - 14-MAR-2014 15:00	Pale brown sandy soil with some vegetation
EA200: Description	VS_MW03_0.2 - 14-MAR-2014 15:00	Pale brown sandy soil with some vegetation plus some red and brown rocks



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405738</b>	Page	: 1 of 23
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: GP	No. of samples received	: 21
Order number	: 0237747	No. of samples analysed	: 20
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3347386)</b>									
ES1405728-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.8	22.4	2.7	0% - 20%
ES1405738-006	VJ_MW07_0.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.2	7.7	6.2	No Limit
<b>EA055: Moisture Content (QC Lot: 3347387)</b>									
ES1405739-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.7	18.6	0.0	0% - 50%
ES1405755-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.5	14.4	6.1	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347094)</b>									
ES1405674-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	40	126	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	33	148	No Limit
ES1405704-004	Anonymous	EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	160	190	14.6	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	8	12	41.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	8	34.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	22	33.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	6	21.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Vanadium	7440-62-2	5	mg/kg	34	38	12.3	No Limit		
EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347094) - continued</b>									
ES1405704-004	Anonymous	EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347096)</b>									
ES1405738-005	VJ_MW08_1.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	40	39.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	25.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	8	31.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	59	88	38.9	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	23	28	21.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	12	35.6	No Limit
		ES1405744-001	Anonymous	EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5
EG005T: Boron	7440-42-8			50	mg/kg	<50	<50	0.0	No Limit
EG005T: Beryllium	7440-41-7			1	mg/kg	<1	<1	0.0	No Limit
EG005T: Cadmium	7440-43-9			1	mg/kg	<1	<1	0.0	No Limit
EG005T: Barium	7440-39-3			10	mg/kg	10	<10	0.0	No Limit
EG005T: Chromium	7440-47-3			2	mg/kg	5	6	0.0	No Limit
EG005T: Cobalt	7440-48-4			2	mg/kg	<2	<2	0.0	No Limit
EG005T: Molybdenum	7439-98-7			2	mg/kg	<2	<2	0.0	No Limit
EG005T: Nickel	7440-02-0			2	mg/kg	<2	<2	0.0	No Limit
EG005T: Arsenic	7440-38-2			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Copper	7440-50-8			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Lead	7439-92-1			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Manganese	7439-96-5			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Selenium	7782-49-2			5	mg/kg	<5	<5	0.0	No Limit
EG005T: Vanadium	7440-62-2			5	mg/kg	9	10	0.0	No Limit
EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347095)</b>									
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405704-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347097)</b>									
ES1405738-005	VJ_MW08_1.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347097) - continued</b>									
ES1405744-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525)</b>									
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405738-016	VS_MW03_1.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3344791) - continued</b>									
ES1405738-005	VJ_MW08_1.0	EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3344791)</b>									
ES1405738-005	VJ_MW08_1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3344828)</b>									
ES1405738-003	VK_MW06_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3344828) - continued</b>									
ES1405738-003	VK_MW06_0.5	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405738-016	VS_MW03_1.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3344828)</b>							
ES1405738-003	VK_MW06_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.1	1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.1	1.0	9.5	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405738-016	VS_MW03_1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3344828) - continued</b>									
ES1405738-016	VS_MW03_1.0	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344790)</b>									
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405738-008	VJ_MW01_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344827)</b>									
ES1405738-003	VK_MW06_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405738-016	VS_MW03_1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344790)</b>									
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405738-008	VJ_MW01_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344827)</b>									
ES1405738-003	VK_MW06_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405738-016	VS_MW03_1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3344790)</b>									
ES1405738-005	VJ_MW08_1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3344790) - continued</b>									
ES1405738-005	VJ_MW08_1.0	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405738-008	VJ_MW01_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3348901)</b>									
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405956-003	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0115	0.0120	3.8	0% - 20%
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3347141)</b>									
ES1405524-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1405699-007	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.002	63.7	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3347141) - continued</b>										
ES1405699-007	Anonymous	EG020A-T: Barium	7440-39-3	0.001	mg/L	0.074	0.073	0.0	0% - 20%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.203	0.184	9.4	0% - 20%	
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.02	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit			
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346620)</b>										
ES1405611-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1405743-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1405743-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1405743-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1405743-005	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	115	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	109	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	116	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	108	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	106	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	111	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	122	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	99.3	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347096)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	109	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	109	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	115	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	107	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	108	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	107	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	112	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	114	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	121	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	111	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095) - continued</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.4	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347097)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.2	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.9	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3344791)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	103	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	107	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	109	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	108	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	107	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3344791)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	73.6	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	95.5	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	95.9	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3344791)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	78.9	54	126	
<b>EP074D: Fumigants (QCLot: 3344791)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	103	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.3	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	87.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344791)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	75.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	93.2	41	141	
		5	mg/kg	<5	----	----	----	----	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344791) - continued</b>									
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	113	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	101	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	108	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	110	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	104	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	105	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	101	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	105	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	105	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	108	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	94.9	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	99.7	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	108	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	95.8	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	94.4	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	97.6	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	96.8	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	93.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	115	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344791)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	108	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	101	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	104	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	101	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	100	54	134	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344791) - continued</b>									
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	109	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3344791)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	103	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	102	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	96.6	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	101	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.4	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	111	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	91.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	106	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	95.1	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	111	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	113	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	90.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	64.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	70.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	47.7	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	83.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	95.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	83.2	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	85.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	84.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	81.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	109	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	88.9	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	110	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.6	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	102	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.5	68.4	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	112	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.8	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	112	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	104	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	93.7	63	131	
<b>EP080: BTEXN (QCLot: 3344790)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	67.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	71.7	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	68.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	72.5	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	72.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.7	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	77.1	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	73.6	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	77.6	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.2	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.9	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.2	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.5	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.0	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.9	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	105	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.7	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.5	68	128	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141) - continued</b>									
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	92.8	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.0	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	95.8	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346620)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345741)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	43.7	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	89.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	75.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	65.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	60.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	64.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.6	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	68.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	18.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345741)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	66.2	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	67.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345741) - continued</b>									
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.4	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	68.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.1	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	71.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	73.1	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	74.2	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	92.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.1	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	88.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	88.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345740)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.8	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.6	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345740)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	97.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.4	75	127	
<b>EP080: BTEXN (QCLot: 3350294)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3350294) - continued</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	120	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	120	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	120	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	116	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.2	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>							
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347096)</b>							
ES1405738-005	VJ_MW08_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	112	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	110	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	113	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>							
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347097)</b>							
ES1405738-005	VJ_MW08_1.0	EG035T: Mercury	7439-97-6	5 mg/kg	94.1	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525) - continued</b>								
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70	130	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344791)</b>								
ES1405738-005	VJ_MW08_1.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	106	70	130	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	95.7	70	130	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344791)</b>								
ES1405738-005	VJ_MW08_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.9	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>								
ES1405738-003	VK_MW06_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.9	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	121	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	70.4	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.8	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>								
ES1405738-003	VK_MW06_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	124	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>								
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>								
ES1405738-003	VK_MW06_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	79.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.7	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.0	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>								
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>								
ES1405738-003	VK_MW06_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	83.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	82.7	52	132	
<b>EP080: BTEXN (QCLot: 3344790)</b>								
ES1405738-005	VJ_MW08_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	97.7	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	100	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	79.9	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>								





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP231: Perfluorinated Compounds (QCLot: 3348901) - continued</b>							
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	56	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>								
ES1405611-011	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.0	70	130	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	86.7	70	130	
		EG020A-T: Barium	7440-39-3	1 mg/L	90.5	70	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.0	70	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	91.0	70	130	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.2	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	97.4	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	88.7	70	130	
		EG020A-T: Manganese	7439-96-5	1 mg/L	88.8	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	93.0	70	130	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	91.2	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346620)</b>								
ES1405738-012	R01_140314_GP	EG035T: Mercury	7439-97-6	0.010 mg/L	80.2	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	70	130	
<b>EP080: BTEXN (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	70	130	
		EP080: Toluene	108-88-3	25 µg/L	79.2	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	77.1	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	89.0	70	130		

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344790)</b>											
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344790)</b>											
ES1405738-005	VJ_MW08_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3344790)</b>											
ES1405738-005	VJ_MW08_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	97.7	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	98.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.3	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	100	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.9	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344791)</b>											
ES1405738-005	VJ_MW08_1.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	106	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	95.7	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344791)</b>											
ES1405738-005	VJ_MW08_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.9	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>											
ES1405738-003	VK_MW06_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	79.3	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.7	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.0	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>											
ES1405738-003	VK_MW06_0.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	83.0	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	82.7	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>											
ES1405738-003	VK_MW06_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.9	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	121	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	70.4	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.8	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>											
ES1405738-003	VK_MW06_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	124	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.5	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>											
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094)</b>											
ES1405674-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347094) - continued</b>										
ES1405674-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	107	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347095)</b>										
ES1405674-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.1	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347096)</b>										
ES1405738-005	VJ_MW08_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	112	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	110	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	103	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	113	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347097)</b>										
ES1405738-005	VJ_MW08_1.0	EG035T: Mercury	7439-97-6	5 mg/kg	94.1	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>										
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	----	56	138	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346620)</b>										
ES1405738-012	R01_140314_GP	EG035T: Mercury	7439-97-6	0.010 mg/L	80.2	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>										
ES1405611-011	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.0	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	86.7	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	90.5	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.0	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	91.0	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.2	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	97.4	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	88.7	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141) - continued</b>										
ES1405611-011	Anonymous	EG020A-T: Manganese	7439-96-5	1 mg/L	88.8	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	93.0	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	91.2	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	79.2	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	78.3	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	77.1	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	89.0	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405738</b>	<b>Page</b>	<b>: 1 of 10</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: SYMPHONY DELTACOAST</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: symphony.deltacoast@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 17-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 25-MAR-2014</b>
<b>Sampler</b>	<b>: GP</b>	<b>No. of samples received</b>	<b>: 21</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 20</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b>								
VK_MW06_0.5, VK_MW07_1.0, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0	VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	----	----	----	19-MAR-2014	28-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b>								
VK_MW07_0.1, VS_MW04_0.2	VK_MW06_0.2, VS_MW03_0.2	14-MAR-2014	---	10-SEP-2014	----	24-MAR-2014	20-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b>								
VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0	VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	19-MAR-2014	10-SEP-2014	✓	20-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b>								
VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0	VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	19-MAR-2014	11-APR-2014	✓	20-MAR-2014	11-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b>								
VS_MW04_1.0, VS_MW03_4.0	VS_MW03_1.0,	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b>							
VK_MW06_0.5, VK_MW07_1.0, VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VK_MW05_1.5, VJ_MW06_0.5, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b>							
VJ_MW08_1.0, VJ_MW07_0.1, VJ_MW09_0.5, VJ_MW01_0.2, VJ_MW10_1.0, VS_MW04_1.0, VS_MW03_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓





Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VS_MW03_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓	
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VS_MW03_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	18-MAR-2014	21-MAR-2014	✓	20-MAR-2014	21-MAR-2014	✓	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0, VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0, VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0, TRIP SPIKE, TSC, VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0, TRIP BLANK,	14-MAR-2014	18-MAR-2014	28-MAR-2014	✓	20-MAR-2014	28-MAR-2014	✓	



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
VK_MW06_0.5, VJ_MW08_1.0, VJ_MW09_0.5, VJ_MW10_1.0, VJ_MW06_0.5, VS_MW03_1.0, TRIP BLANK	VK_MW07_1.0, VJ_MW07_0.1, VJ_MW01_0.2, VK_MW05_1.5, VS_MW04_1.0, VS_MW03_4.0,	14-MAR-2014	18-MAR-2014	28-MAR-2014	✓	20-MAR-2014	28-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP231)</b>								
VS_MW04_1.0,	VS_MW03_1.0	14-MAR-2014	20-MAR-2014	10-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
R01_140314_GP		14-MAR-2014	19-MAR-2014	10-SEP-2014	✓	20-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b>								
R01_140314_GP		14-MAR-2014	----	----	----	19-MAR-2014	11-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
R01_140314_GP		14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
R01_140314_GP		14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
R01_140314_GP		14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
R01_140314_GP		14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
R01_140314_GP		14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405738-004	VK_MW07_1.0	Toluene-D8	2037-26-5	73.4 %	73.9-132.1 %	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1405738</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: SYMPHONY DELTACOAST	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: symphony.deltacoast@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: GP		

**Dates**

<b>Date Samples Received</b>	: 17-MAR-2014	<b>Issue Date</b>	: 18-MAR-2014 08:19
<b>Client Requested Due Date</b>	: 25-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>25-MAR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 4.1°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 21
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 20

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP066 (solids) Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - EP231 Perfluorooxy Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)
ES1405738-001	14-MAR-2014 11:20	VK_MW07_0.1		✓						
ES1405738-002	14-MAR-2014 09:30	VK_MW06_0.2		✓						
ES1405738-003	14-MAR-2014 09:40	VK_MW06_0.5			✓					✓
ES1405738-004	14-MAR-2014 11:35	VK_MW07_1.0			✓					✓
ES1405738-005	14-MAR-2014 14:20	VJ_MW08_1.0					✓			
ES1405738-006	14-MAR-2014 14:40	VJ_MW07_0.1					✓			
ES1405738-007	14-MAR-2014 13:45	VJ_MW09_0.5					✓			
ES1405738-008	14-MAR-2014 10:20	VJ_MW01_0.2					✓			
ES1405738-009	14-MAR-2014 10:50	VJ_MW10_1.0					✓			
ES1405738-010	14-MAR-2014 09:15	VK_MW05_1.5			✓					✓
ES1405738-011	14-MAR-2014 10:20	D01_140314_GP	✓							
ES1405738-013	14-MAR-2014 16:45	VJ_MW06_0.5			✓					✓
ES1405738-014	14-MAR-2014 15:00	VS_MW04_0.2		✓						
ES1405738-015	14-MAR-2014 15:00	VS_MW04_1.0				✓	✓		✓	
ES1405738-016	14-MAR-2014 15:00	VS_MW03_1.0				✓	✓		✓	
ES1405738-017	14-MAR-2014 15:00	VS_MW03_4.0				✓	✓			
ES1405738-018	14-MAR-2014 15:00	VS_MW03_0.2		✓						
ES1405738-019	14-MAR-2014 15:00	TRIP SPIKE						✓		
ES1405738-021	14-MAR-2014 15:00	TSC						✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1405738-003	14-MAR-2014 09:40	VK_MW06_0.5		✓	
ES1405738-004	14-MAR-2014 11:35	VK_MW07_1.0		✓	
ES1405738-005	14-MAR-2014 14:20	VJ_MW08_1.0			✓
ES1405738-006	14-MAR-2014 14:40	VJ_MW07_0.1			✓
ES1405738-007	14-MAR-2014 13:45	VJ_MW09_0.5			✓



			SOIL - S-18 (NO MOIST) TRH/C6-C9/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/6Metals
ES1405738-008	14-MAR-2014 10:20	VJ_MW01_0.2			✓
ES1405738-009	14-MAR-2014 10:50	VJ_MW10_1.0			✓
ES1405738-010	14-MAR-2014 09:15	VK_MW05_1.5		✓	
ES1405738-013	14-MAR-2014 16:45	VJ_MW06_0.5		✓	
ES1405738-015	14-MAR-2014 15:00	VS_MW04_1.0			✓
ES1405738-016	14-MAR-2014 15:00	VS_MW03_1.0			✓
ES1405738-017	14-MAR-2014 15:00	VS_MW03_4.0			✓
ES1405738-020	14-MAR-2014 15:00	TRIP BLANK	✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405738-012	14-MAR-2014 16:00	R01_140314_GP	✓	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email [au.accounts@erm.com](mailto:au.accounts@erm.com)



Environmental  
ALS Laboratory  
please tick →

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

SITE MANAGER: JOHN EWING

SAMPLER: *Conna Powell*

COC emailed to ALS? (YES / NO)

Email Reports to (will default to PM if no other addresses are listed): symphony.dellaacapa@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.dellaacapa@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:

Standard TAT may be longer for some tests e.g. Ultra/Trace Organics

AL\$ QUOTE NO.:

CONTACT PH: 0401 776 230

SAMPLER MOBILE: *0401683732*

EDD FORMAT (or default):

Standard TAT (List due date):

Standard or urgent TAT (List due date):

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY: *Ravi*

DATE/TIME: *17/3 19:00*

FOR LABORATORY USE ONLY (Circle)

Quantity Seal Integrity

Facilities/Access to laboratories/containers

Randomly Sample Temperature on Receipt

Other Comments

RECEIVED BY:

DATE/TIME:

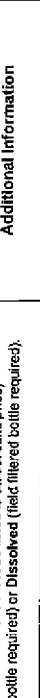
RECEIVED BY:

DATE/TIME:

Additional Information

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

Environmental Division  
Sydney  
Work Order  
**ES1405738**



Telephone : +61-2-8784 8555

ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)

Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).

13 METALS (W-3) + B, Mo, Ti, Se

8 METALS (W-2)

TOTAL CONTAINERS (refer to TYPE & PRESERVATIVE codes below)

TPH/BTEX/PAH

PHENOLS

VOC

PCB

NT-1 (Ca, Mg, Na, K)

NT-2 (Al, SO<sub>4</sub>, Cl)

FOS/POA

Ultra Trace PAH

Ultra Trace Metals

Asbestos

CONTAINER INFORMATION

TYPE & PRESERVATIVE codes below

(refer to TOTAL CONTAINERS)

MATRIX

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

SAMPLE ID

DATE / TIME

TOTAL = 16

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CR = Nitric Preserved CR; SH = Sodium Hydroxide/Cu Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottles; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



# CHAIN OF CUSTODY

ALS Environmental  
ALS Laboratory:  
Please tick →

DADELAIDE 21: Berrys Road Porculla SA 5005  
Ph: 08 8559 0600 E: dade@alsglobal.com  
DORISBAINE 32: Sharda Street Stirling QLD 4053  
Ph: 07 3243 7222 E: doris@alsglobal.com  
CGLADSTONE 46: Gifford Street Clinton QLD 4680  
Ph: 07 4747 3800 E: glad@alsglobal.com

DIMACKAY 70: Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com  
DINELBOURNE 24: Westall Road Springsvale VIC 3171  
Ph: 03 9545 9600 E: springs@alsglobal.com  
DINDUSSE 27: Sydney Road Mudgee NSW 2850  
Ph: 02 6372 6738 E: mudgee@alsglobal.com

DINOWCASTLES 80: Ross Court Road Warabook NSW 2304  
Ph: 02 4688 9539 E: warabook@alsglobal.com  
DINOWRA 4/13: Geary Place North Nowra NSW 2541  
Ph: 02 4423 2053 E: nowra@alsglobal.com  
DIPERTH 10: Hest Way Malaga WA 6000  
Ph: 08 9208 7655 E: malaga@alsglobal.com

DISCOVERY 271: 289 Woodbank Road Smithfield NSW 2164  
Ph: 02 8764 6525 E: smithfield@alsglobal.com  
DITONNSVILLE 14-15: Deane Court Berala QLD 4018  
Ph: 07 4736 0600 E: berala@alsglobal.com  
DWOALLOONGONG 69: Kerry Street Wyalong NSW 2640  
Ph: 02 4225 3126 E: wyalong@alsglobal.com

### TURNAROUND REQUIREMENTS:

Standard TAT may be longer for some tests e.g. Ultra Trace Organics

ALSO QUOTE NO.:

Standard TAT (List due date):  
Non Standard or urgent TAT (List due date):

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7  
OP: 1 2 3 4 5 6 7

### FOR LABORATORY USE ONLY (Circle)

Quality Seal checked? Yes No  
Finalised (re-assessed) before presentation receipt? Yes No  
Blanking Sample Temperature in Receipt? Yes No  
Other Comments: Yes No

RECEIVED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME: 17/3/14

SAMPLER MOBILE:

EDD FORMAT (for default):

CONTACT PH: 0401 776 290

PROJECT: VALES POINT POWER STATION

PROJECT MANAGER: JOHN EWING

EDD FORMATS (for default):

RECEIVED BY: John Ewing

DATE/TIME: 17/3/14

RECEIVED BY:

DATE/TIME:

### COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

13 METALS (S-3) + B, Mo, Tl, Se

8 METALS (S-2)

TOTAL CONTAINERS

(refer to)

TYPE & PRESERVATIVE codes below)

MATRIX

DATE / TIME

SAMPLE ID

LAB ID

14 VS\_MW04\_0.2 14/3/14

15 VS\_MW04\_1.0

16 VS\_MW03\_1.0

17 VS\_MW03\_4.0

18 VS\_MW03\_0.2

19 TRIP SPIKE

20 TRIP BLANK

21 TSC

1 BAG

3 BAGS, 1 BAG

2 BAGS, 1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

1 BAG

### TOTAL

1

4

3

1

1

1

1

1

1

ASBESTOS

PHENOLS (S-24)

TPH/BTEX/PAH

EC Saturated Paste

Ultra Trace PAH

Ultra Trace Metals

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

BTEX

BTEX + TPH

Water Containment Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Air-tight Unpreserved Plastic; V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulfate Preserved; AV = Air-tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.







## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405739</b>	Page	: 1 of 18
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: SB	No. of samples received	: 12
Site	: ----	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	3.7	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	18.7	----	20.0	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	318	----	337	----	470
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.318	----	0.337	----	0.470
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.4	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	0.6	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.1	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.1	----	----	----
<b>ED040S : Soluble Sulfate by ICPAES</b>								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	20	----	----	----
<b>ED045G: Chloride Discrete analyser</b>								
Chloride	16887-00-6	10	mg/kg	----	40	----	----	----
<b>ED093S: Soluble Major Cations</b>								
Calcium	7440-70-2	10	mg/kg	----	<10	----	----	----
Magnesium	7439-95-4	10	mg/kg	----	<10	----	----	----
Sodium	7440-23-5	10	mg/kg	----	20	----	----	----
Potassium	7440-09-7	10	mg/kg	----	<10	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	8	----	7	----
Copper	7440-50-8	5	mg/kg	----	8	----	20	----
Lead	7439-92-1	5	mg/kg	----	6	----	8	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	16	----
Zinc	7440-66-6	5	mg/kg	----	15	----	36	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	0.9	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	<0.5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	<5	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	<0.5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	1.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	3.3	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	5.8	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	0.6	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<b>11.2</b>	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<b>490</b>	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<b>2350</b>	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<b>2840</b>	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<b>10</b>	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<b>10</b>	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<b>1190</b>	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<b>1690</b>	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<b>2880</b>	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<b>1190</b>	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW01_0.2	VI_MW01_0.5	VB_MW01_0.2	VB_MW01_0.5	VB_MW02_0.2
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-001	ES1405739-002	ES1405739-003	ES1405739-004	ES1405739-005
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	----	<1	----	2	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	----	<0.0005	----
PFOA	335-67-1	0.0005	mg/kg	----	----	----	<0.0005	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	----	<0.005	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	87.2	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	110	----
Toluene-D8	2037-26-5	0.1	%	----	----	----	98.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	107	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	112	----	68.3	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	112	----	119	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	80.1	----	106	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	101	----	102	----
Anthracene-d10	1719-06-8	0.1	%	----	109	----	102	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	119	----	104	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	100	----	107	----
Toluene-D8	2037-26-5	0.1	%	----	96.0	----	99.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	104	----	114	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	6.6	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.2	16.5	18.0	16.0	19.0
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	4.0	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	1.7	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.3	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	6.1	----	----	----	----
<b>ED040S : Soluble Sulfate by ICPAES</b>								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	20	10	----	----
<b>ED045G: Chloride Discrete analyser</b>								
Chloride	16887-00-6	10	mg/kg	----	80	80	----	----
<b>ED093S: Soluble Major Cations</b>								
Calcium	7440-70-2	10	mg/kg	----	<10	<10	----	----
Magnesium	7439-95-4	10	mg/kg	----	<10	<10	----	----
Sodium	7440-23-5	10	mg/kg	----	40	50	----	----
Potassium	7440-09-7	10	mg/kg	----	<10	<10	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	9	8	7	7
Copper	7440-50-8	5	mg/kg	7	14	13	14	17
Lead	7439-92-1	5	mg/kg	<5	6	6	<5	5
Nickel	7440-02-0	2	mg/kg	3	8	6	6	5
Zinc	7440-66-6	5	mg/kg	12	26	22	22	22
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	180	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	180	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	60	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	190	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	250	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	60	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	----	----	----	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	83.9	----	----	95.3	75.3
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.0	----	----	106	95.2
Toluene-D8	2037-26-5	0.1	%	103	----	----	110	108
4-Bromofluorobenzene	460-00-4	0.1	%	100	----	----	90.7	88.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW02_0.5	VI_MW01_2.0	D01_140314NO	D02_140314NO	VB_MW01_2.0
				14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00	14-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405739-006	ES1405739-007	ES1405739-008	ES1405739-009	ES1405739-011
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	96.2	63.4	102	98.2	106
2-Chlorophenol-D4	93951-73-6	0.1	%	106	61.1	124	105	104
2,4,6-Tribromophenol	118-79-6	0.1	%	86.0	87.3	81.6	75.9	71.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	96.2	99.2	96.2	94.5	92.5
Anthracene-d10	1719-06-8	0.1	%	100	105	99.8	98.8	103
4-Terphenyl-d14	1718-51-0	0.1	%	59.0	102	127	96.2	97.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.3	95.4	94.8	103	92.3
Toluene-D8	2037-26-5	0.1	%	98.8	89.3	100	87.9	85.6
4-Bromofluorobenzene	460-00-4	0.1	%	107	104	106	97.7	94.8





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_140314\_SB

---

---

---

---

Client sampling date / time

14-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405739-012	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
-------------	---------	-----	------	------	-----	-----	-----	-----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_140314\_SB

---

---

---

---

Client sampling date / time

14-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405739-012	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_140314_SB	----	----	----	----
14-MAR-2014 15:00	----	----	----	----
ES1405739-012	----	----	----	----

Client sampling date / time

Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----

### EP075(SIM)S: Phenolic Compound Surrogates

Phenol-d6	13127-88-3	0.1	%	35.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	74.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	28.0	----	----	----	----

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	83.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	68.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	71.1	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.3	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	95.3	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.9	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VI_MW01_0.2 - 14-MAR-2014 15:00	Pale brown sandy soil with a trace of vegetation
EA200: Description	VB_MW01_0.2 - 14-MAR-2014 15:00	Pale brown sandy soil with a trace of vegetation plus some grey and red rocks
EA200: Description	VB_MW02_0.2 - 14-MAR-2014 15:00	Pale yellow- brown sandy soil with a trace of vegetation plus some grey and red rocks



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405739</b>	Page	: 1 of 21
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: SB	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3351323)</b>									
ES1405662-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.0	4.8	4.1	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3347387)</b>									
ES1405739-002	VI_MW01_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.7	18.6	0.0	0% - 50%
ES1405755-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.5	14.4	6.1	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3347191)</b>									
ES1405660-007	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.1	3.0	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.6	3.5	0.0	0% - 20%
<b>ED040S: Soluble Major Anions (QC Lot: 3351356)</b>									
ES1405694-004	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	1400	1500	7.1	0% - 20%
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 3351326)</b>									
ES1405739-002	VI_MW01_0.5	ED045G: Chloride	16887-00-6	10	mg/kg	40	40	0.0	No Limit
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 3351355)</b>									
ES1405691-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	26200	26300	0.08	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3351439)</b>									
ES1405739-002	VI_MW01_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	7	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	5	21.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	15	6	83.7	No Limit
ES1405891-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	4	70.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	9	15.6	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3351440)</b>									
ES1405739-002	VI_MW01_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405891-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3345525)</b>									
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405738-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3344822) - continued</b>									
ES1405611-002	Anonymous	EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3344822)</b>									
ES1405611-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3344828)</b>									
ES1405738-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3344828) - continued</b>									
ES1405738-003	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405738-016	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3344828)</b>									
ES1405738-003	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.1	1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.1	1.0	9.5	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405738-016	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3344828) - continued</b>									
ES1405738-016	Anonymous	EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344821)</b>									
ES1405611-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405662-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3344827)</b>									
ES1405738-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405738-016	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344821)</b>									
ES1405611-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405662-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3344827)</b>									
ES1405738-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405738-016	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3344821)</b>									
ES1405611-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3344821) - continued</b>										
ES1405611-002	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1405662-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>EP231: Perfluorinated Compounds (QC Lot: 3348901)</b>										
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 Fts)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	
ES1405956-003	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0115	0.0120	3.8	0% - 20%	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 Fts)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3347141)</b>										
ES1405524-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit			
ES1405699-007	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.002	63.7	No Limit	
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.074	0.073	0.0	0% - 20%	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3347141) - continued</b>										
ES1405699-007	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.203	0.184	9.4	0% - 20%	
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.02	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit			
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3346620)</b>										
ES1405611-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1405743-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1405743-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1405743-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1405743-005	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3347191)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>ED040S: Soluble Major Anions (QCLot: 3351324)</b>									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	90.4	84	112	
<b>ED040S: Soluble Major Anions (QCLot: 3351356)</b>									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	100	84	112	
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351326)</b>									
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	112	79	125	
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351355)</b>									
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	112	79	125	
<b>ED093S: Soluble Major Cations (QCLot: 3351325)</b>									
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	86.8	85	113	
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	88.0	86	116	
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	94.9	80	112	
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	88.8	88	114	
<b>ED093S: Soluble Major Cations (QCLot: 3351357)</b>									
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	87.4	85	113	
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	86.5	86	116	
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	90.8	80	112	
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	92.1	88	114	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3351439)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	105	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351440)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.5	66	112	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	73.9	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3344822)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	83.2	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	83.0	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	75.4	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	78.6	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	79.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	79.4	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	78.9	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	75.6	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	69.8	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3344822)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	37.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	135	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	105	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	108	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3344822)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	66.5	54	126	
<b>EP074D: Fumigants (QCLot: 3344822)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	76.0	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	88.7	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	88.9	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344822)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	43.3	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	52.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	62.0	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	69.2	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	77.2	49	143	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344822) - continued</b>									
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	74.3	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	77.9	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	64.8	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	82.4	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	86.8	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	86.5	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	87.7	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	82.2	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	87.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	99.1	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	88.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	96.2	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	105	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.1	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	93.7	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	89.4	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	87.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	104	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	109	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	82.6	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	108	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	71.4	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344822)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	90.8	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	83.0	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	80.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	80.3	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	80.0	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	79.4	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	83.0	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	65.2	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	76.6	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3344822)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	88.8	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	100	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	100	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	109	60	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	82.4	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	111	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	91.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	106	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	106	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	95.1	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	111	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	113	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	90.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	64.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	70.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	47.7	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	83.5	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	95.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	83.2	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	85.4	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	84.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	81.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	109	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.6	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	88.9	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	110	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.6	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	102	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344821)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	112	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344821)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	94.0	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827) - continued</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	112	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	104	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	93.7	63	131	
<b>EP080: BTEXN (QCLot: 3344821)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	78.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.1	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	91.3	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.1	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	77.1	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	73.6	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	77.6	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.2	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.9	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.2	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.5	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.0	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.9	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	105	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.7	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.5	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	92.8	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.0	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	95.8	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346620)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3345741)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	43.7	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	89.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	75.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	65.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	60.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	64.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.6	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	68.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	18.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345741)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	66.2	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	67.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.4	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	68.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345741) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.1	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	71.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	73.1	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	74.2	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	92.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.1	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	88.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	88.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3345740)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.8	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.6	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3345740)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	97.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.4	75	127	
<b>EP080: BTEXN (QCLot: 3350294)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	120	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	120	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	120	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	116	72	122	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3350294) - continued</b>								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.2	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351326)</b>							
ES1405739-002	VI_MW01_0.5	ED045G: Chloride	16887-00-6	1250 mg/kg	99.4	70	130
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351355)</b>							
ES1405691-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	# Not Determined	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3351439)</b>							
ES1405739-002	VI_MW01_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	107	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.6	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	101	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351440)</b>							
ES1405739-002	VI_MW01_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.4	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>							
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344822)</b>							
ES1405611-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	76.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	74.4	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344822)</b>							
ES1405611-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>							
ES1405738-003	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	121	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	70.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.8	20	130





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>								
ES1405738-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	124	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344821)</b>								
ES1405611-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>								
ES1405738-003	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.3	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.7	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.0	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344821)</b>								
ES1405611-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>								
ES1405738-003	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	83.0	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	82.7	52	132	
<b>EP080: BTEXN (QCLot: 3344821)</b>								
ES1405611-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	75.6	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.4	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.4	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	75.6	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>								
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>							
ES1405611-011	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.0	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	86.7	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	90.5	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.0	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	91.0	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.2	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.4	70	130





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3344821) - continued</b>										
ES1405611-002	Anonymous	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.6	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3344822)</b>										
ES1405611-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	76.2	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	74.4	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3344822)</b>										
ES1405611-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3344827)</b>										
ES1405738-003	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.7	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.0	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3344827)</b>										
ES1405738-003	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	105	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	83.0	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	82.7	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3344828)</b>										
ES1405738-003	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.9	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	121	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	70.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3344828)</b>										
ES1405738-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	124	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.5	----	70	130	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3345525)</b>										
ES1405661-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3348901)</b>										
ES1405674-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	79.7	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	81.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	90.6	----	56	138	----	----
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351326)</b>										
ES1405739-002	VI_MW01_0.5	ED045G: Chloride	16887-00-6	1250 mg/kg	99.4	----	70	130	----	----
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3351355)</b>										
ES1405691-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	# Not Determined	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3351439)</b>										
ES1405739-002	VI_MW01_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	107	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3351439) - continued</b>										
ES1405739-002	VI_MW01_0.5	EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	105	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.6	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	101	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351440)</b>										
ES1405739-002	VI_MW01_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	94.4	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3346620)</b>											
ES1405738-012	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	80.2	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3347141)</b>											
ES1405611-011	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.0	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	86.7	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	90.5	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.0	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	91.0	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.2	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	97.4	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	88.7	----	70	130	----	----	
		EG020A-T: Manganese	7439-96-5	1 mg/L	88.8	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	93.0	----	70	130	----	----	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	91.2	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	----	70	130	----	----	
		<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>									
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>											
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3350294)</b>											
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	79.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	77.1	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		25 µg/L	89.0	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405739</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 25-MAR-2014
Sampler	: SB	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
<b>Soil Glass Jar - Unpreserved (EA002)</b> VI_MW01_0.5, VB_MW02_0.5	14-MAR-2014	21-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0 VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	----	----	----	19-MAR-2014	28-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VI_MW01_0.2, VB_MW02_0.2 VB_MW01_0.2,	14-MAR-2014	---	10-SEP-2014	----	24-MAR-2014	20-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED007)</b> VI_MW01_0.5, VB_MW02_0.5	14-MAR-2014	19-MAR-2014	11-APR-2014	✓	20-MAR-2014	11-APR-2014	✓
<b>ED040S : Soluble Sulfate by ICPAES</b>							
<b>Soil Glass Jar - Unpreserved (ED040S)</b> VI_MW01_0.5, D01_140314NO VI_MW01_2.0,	14-MAR-2014	21-MAR-2014	11-APR-2014	✓	21-MAR-2014	18-APR-2014	✓
<b>ED045G: Chloride Discrete analyser</b>							
<b>Soil Glass Jar - Unpreserved (ED045G)</b> VI_MW01_0.5, D01_140314NO VI_MW01_2.0,	14-MAR-2014	21-MAR-2014	11-APR-2014	✓	21-MAR-2014	18-APR-2014	✓
<b>ED093S: Soluble Major Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED093S)</b> VI_MW01_0.5, D01_140314NO VI_MW01_2.0,	14-MAR-2014	21-MAR-2014	10-SEP-2014	✓	21-MAR-2014	10-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	21-MAR-2014	10-SEP-2014	✓	24-MAR-2014	10-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	21-MAR-2014	11-APR-2014	✓	24-MAR-2014	11-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	21-MAR-2014	28-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074C: Sulfonated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
Soil Glass Jar - Unpreserved (EP074) VB_MW01_0.5, D02_140314NO,	VB_MW02_0.5, VB_MW01_2.0	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	21-MAR-2014	21-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	20-MAR-2014	28-MAR-2014	✓	22-MAR-2014	29-APR-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	21-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP080) VI_MW01_0.5, VB_MW02_0.5, D01_140314NO, VB_MW01_2.0	VB_MW01_0.5, VI_MW01_2.0, D02_140314NO,	14-MAR-2014	19-MAR-2014	28-MAR-2014	✓	21-MAR-2014	28-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
Soil Glass Jar - Unpreserved (EP231) VB_MW01_0.5,	VB_MW02_0.5	14-MAR-2014	20-MAR-2014	10-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_140314_SB		14-MAR-2014	19-MAR-2014	10-SEP-2014	✓	20-MAR-2014	10-SEP-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_140314_SB	14-MAR-2014	----	----	----	19-MAR-2014	11-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_140314_SB	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_140314_SB	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_140314_SB	14-MAR-2014	19-MAR-2014	21-MAR-2014	✓	20-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_140314_SB	14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_140314_SB	14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Chloride Soluble By Discrete Analyser	ED045G	2	6	33.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	1	11	9.1	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	14	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Cations - soluble by ICP-AES	ED093S	2	3	66.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	4	6	66.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	2	12	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Cations - soluble by ICP-AES	ED093S	2	3	66.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	2	6	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	2	12	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Chloride Soluble By Discrete Analyser	ED045G	2	6	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	APHA 21st edition 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	APHA 21st ed., 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
ED045G: Chloride by Discrete Analyser	ES1405691-001	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1405739-007	VI_MW01_2.0	2-Chlorophenol-D4	93951-73-6	61.1 %	66-122 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405739-008	D01_140314NO	2-Chlorophenol-D4	93951-73-6	124 %	66-122 %	Recovery greater than upper data quality objective
EP075(SIM)T: PAH Surrogates	ES1405739-006	VB_MW02_0.5	4-Terphenyl-d14	1718-51-0	59.0 %	65-129 %	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
Major Anions - Soluble	1	11	9.1	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405739**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : SYMPHONY DELTACOAST</b>  <b>Address : GRND FLOOR, 33 SAUNDERS STREET</b>  <b>PYRMONT NSW AUSTRALIA 2009</b></p> <p><b>E-mail : symphony.deltacoast@erm.com</b>  <b>Telephone : +61 02 8584 8888</b>  <b>Facsimile : +61 02 8584 8800</b></p> <p><b>Project : VALES POINT POWER STATION</b>  <b>Order number : 0237747</b>  <b>C-O-C number : ----</b>  <b>Site : ----</b>  <b>Sampler : SB</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b>  <b>Address : 277-289 Woodpark Road Smithfield</b>  <b>NSW Australia 2164</b></p> <p><b>E-mail : Barbara.Hanna@alsglobal.com</b>  <b>Telephone : +61 2 8784 8555</b>  <b>Facsimile : +61 2 8784 8555</b></p> <p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 17-MAR-2014</b></p> <p><b>Client Requested Due Date : 25-MAR-2014</b></p>	<p><b>Issue Date : 18-MAR-2014 08:34</b></p> <p><b>Scheduled Reporting Date : <b>25-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.2°C - Ice present</b></p> <p><b>No. of samples received : 12</b></p> <p><b>No. of samples analysed : 11</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample D03\_140314 will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS
ES1405739-001	14-MAR-2014 15:00	VI_MW01_0.2				✓				
ES1405739-002	14-MAR-2014 15:00	VI_MW01_0.5		✓			✓			
ES1405739-003	14-MAR-2014 15:00	VB_MW01_0.2				✓				
ES1405739-004	14-MAR-2014 15:00	VB_MW01_0.5			✓			✓	✓	✓
ES1405739-005	14-MAR-2014 15:00	VB_MW02_0.2				✓				
ES1405739-006	14-MAR-2014 15:00	VB_MW02_0.5		✓	✓		✓	✓	✓	✓
ES1405739-009	14-MAR-2014 15:00	D02_140314NO			✓			✓	✓	
ES1405739-011	14-MAR-2014 15:00	VB_MW01_2.0			✓			✓	✓	
ES1405739-013	14-MAR-2014 15:00	D01_140314_SB	✓							

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-27 TRH/BTEX/NPAH/Phenols/6Metals
ES1405739-002	14-MAR-2014 15:00	VI_MW01_0.5	✓	✓	✓
ES1405739-004	14-MAR-2014 15:00	VB_MW01_0.5			✓
ES1405739-006	14-MAR-2014 15:00	VB_MW02_0.5			✓
ES1405739-007	14-MAR-2014 15:00	VI_MW01_2.0	✓	✓	✓
ES1405739-008	14-MAR-2014 15:00	D01_140314NO	✓	✓	✓
ES1405739-009	14-MAR-2014 15:00	D02_140314NO			✓
ES1405739-011	14-MAR-2014 15:00	VB_MW01_2.0			✓



Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEX/NPAH/Phenols
ES1405739-012	14-MAR-2014 15:00	R01_140314_SB	✓	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA )      Email      symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )      Email      symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )      Email      symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )      Email      symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )      Email      symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )      Email      symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )      Email      symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM )      Email      symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )      Email      symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )      Email      symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )      Email      au.accounts@erm.com











## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405876</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 18-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 4
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Organics
		Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_MW02_2.0	TRIP SPIKE 1	TRIP BLANK	TSC	----
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	----
				ES1405876-001	ES1405876-002	ES1405876-003	ES1405876-004	----
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.8	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	15	----	----	----	----
Copper	7440-50-8	5	mg/kg	26	----	----	----	----
Lead	7439-92-1	5	mg/kg	10	----	----	----	----
Nickel	7440-02-0	2	mg/kg	26	----	----	----	----
Zinc	7440-66-6	5	mg/kg	106	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW02_2.0	TRIP SPIKE 1	TRIP BLANK	TSC	----
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405876-001	ES1405876-002	ES1405876-003	ES1405876-004	----
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW02_2.0	TRIP SPIKE 1	TRIP BLANK	TSC	----
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405876-001	ES1405876-002	ES1405876-003	ES1405876-004	----
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW02_2.0	TRIP SPIKE 1	TRIP BLANK	TSC	----
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405876-001	ES1405876-002	ES1405876-003	ES1405876-004	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<b>0.3</b>	<0.2	<b>0.7</b>	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<b>12.1</b>	<0.5	<b>17.4</b>	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<b>1.2</b>	<0.5	<b>1.9</b>	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_MW02_2.0	TRIP SPIKE 1	TRIP BLANK	TSC	----
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1405876-001	ES1405876-002	ES1405876-003	ES1405876-004	----
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	6.6	<0.5	8.9	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.6	<0.5	3.6	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	9.2	<0.5	12.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	22.8	<0.2	32.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	76.3	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.4	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	100	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	88.2	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	109	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	74.2	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	99.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	109	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	105	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.5	87.0	94.4	74.9	----
Toluene-D8	2037-26-5	0.1	%	106	105	113	77.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	95.8	91.5	98.0	81.3	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405876</b>	Page	: 1 of 16
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 18-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAR-2014
<b>Sampler</b>	: KB	<b>No. of samples received</b>	: 6
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 4
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Organics
		Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3350008)</b>									
ES1405527-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	33.7	33.1	1.8	0% - 20%
ES1405804-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.5	14.6	7.3	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347467)</b>									
ES1405728-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	17	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	10	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	39	10.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	24	5.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	57	62	8.4	0% - 50%
ES1405804-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	41	36	11.7	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	17	10	45.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	<5	59.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	<5	32.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	29	20	34.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	49	28	54.3	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347468)</b>									
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3346843)</b>									
ES1405819-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3347809) - continued</b>									
ES1405876-001	VA_MW02_2.0	EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3347809) - continued</b>									
ES1405876-001	VA_MW02_2.0	EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3347809)</b>									
ES1405876-001	VA_MW02_2.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405881-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918) - continued</b>									
ES1405880-001	Anonymous	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405881-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346917)</b>									
ES1405880-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346917) - continued</b>										
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405881-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347808)</b>										
ES1405876-001	VA_MW02_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405879-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405881-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347808)</b>										
ES1405876-001	VA_MW02_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405879-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3347808)</b>										
ES1405876-001	VA_MW02_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405879-013	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			





## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	118	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	112	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	123	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.1	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3346843)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	75.3	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3347809)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	103	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	94.4	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	101	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	100	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	98.4	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3347809)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	84.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	120	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	126	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3347809)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54	126	
<b>EP074D: Fumigants (QCLot: 3347809)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3347809) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	111	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	95.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	110	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	84.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	107	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	115	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	100	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	122	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	109	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	106	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	99.3	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	104	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	107	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	104	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	109	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	108	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	117	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	119	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.9	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	96.1	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	97.4	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	98.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	109	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	111	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	96.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	105	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	79.2	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	106	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	104	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	105	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.5	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	98.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	103	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	88.7	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3347809)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	103	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	97.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	112	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	106	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	107	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	103	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	91.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	91.7	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	79.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.4	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918) - continued</b>									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	104	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	92.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.4	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	82.3	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	101	68.4	128	
<b>EP080: BTEXN (QCLot: 3347808)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.9	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.4	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	73.2	62	138	
<b>EP080: BTEXN (QCLot: 3347810)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.2	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.0	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.5	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.





Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>							
ES1405728-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	113	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	116	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	115	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	109	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>							
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3346843)</b>							
ES1405819-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	99.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>							
ES1405876-001	VA_MW02_2.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>							
ES1405876-001	VA_MW02_2.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	76.6	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>							
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>							
ES1405876-001	VA_MW02_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>							
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808) - continued</b>							
ES1405876-001	VA_MW02_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70	130
<b>EP080: BTEXN (QCLot: 3347808)</b>							
ES1405876-001	VA_MW02_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	86.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.7	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.4	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	88.6	70	130
		EP080: Naphthalene	95-47-6	2.5 mg/kg	83.1	70	130
<b>EP080: BTEXN (QCLot: 3347810)</b>							
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	74.8	70	130
		EP080: Naphthalene	95-47-6	2.5 mg/kg	76.6	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3346843)</b>										
ES1405819-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	99.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>										
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918) - continued</b>											
ES1405880-001	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>											
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>											
ES1405728-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	113	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	116	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	115	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	109	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>											
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>											
ES1405876-001	VA_MW02_2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>											
ES1405876-001	VA_MW02_2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3347808)</b>											
ES1405876-001	VA_MW02_2.0	EP080: Benzene	71-43-2	2.5 mg/kg	86.5	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	88.7	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.6	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	83.1	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>											
ES1405876-001	VA_MW02_2.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.2	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.2	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>											
ES1405876-001	VA_MW02_2.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	76.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3347810)</b>											
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	----	70	130	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3347810) - continued</b>										
ES1405878-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.6	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405876</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: KB	No. of samples received	: 6
Order number	: 0237747	No. of samples analysed	: 4
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VA_MW02_2.0	17-MAR-2014	----	----	----	20-MAR-2014	31-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VA_MW02_2.0	17-MAR-2014	19-MAR-2014	13-SEP-2014	✓	20-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VA_MW02_2.0	17-MAR-2014	19-MAR-2014	14-APR-2014	✓	21-MAR-2014	14-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Soil Glass Jar - Unpreserved (EP066) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	24-MAR-2014	30-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP074D: Fumigants</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VA_MW02_2.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) TSC	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VA_MW02_2.0, TRIP SPIKE 1, TRIP BLANK	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP080) VA_MW02_2.0, TRIP BLANK	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1405876</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : VALES POINT POWER STATION</b> <b>Order number : 0237747</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : KB</b>	<b>Page : 1 of 2</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 18-MAR-2014</b> <b>Client Requested Due Date : 26-MAR-2014</b>	<b>Issue Date : 19-MAR-2014 07:39</b> <b>Scheduled Reporting Date : 26-MAR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 1 HARD</b> <b>Security Seal : Intact.</b>	<b>Temperature : 3.1°C - Ice present</b> <b>No. of samples received : 6</b> <b>No. of samples analysed : 4</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Received extra samples VU\_MW02\_1.6 and VU\_MW02\_4.8 placed on hold, Please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP080	BTEXN	SOIL - S-18 (NO MOIST)	TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27	TRH(BTEXN)/PAH/Phenols/8Metals
ES1405876-001	17-MAR-2014 15:00	VA_MW02_2.0			✓		✓							✓
ES1405876-002	17-MAR-2014 15:00	TRIP SPIKE 1								✓				
ES1405876-003	17-MAR-2014 15:00	TRIP BLANK										✓		
ES1405876-004	17-MAR-2014 15:00	TSC								✓				
ES1405876-005	18-MAR-2014 10:00	VU_MW02_1.6	✓											
ES1405876-006	18-MAR-2014 11:00	VU_MW02_4.8	✓											

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

DADELADE 21 Burnside Road, Pooraka SA 5005  
Ph: 08 8359 0850 E: adelaide@alsglobal.com

DIMACKAY 75 Harbour Road, Mackay QLD 4740  
Ph: 07 4544 0177 E: mackay@alsglobal.com

CHENYUASTLES Ross Court Road, Warabrook NSW 2504  
Ph: 02 4668 9455 E: chenyaustles@alsglobal.com

DUNEDIN 277-285 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8855 E: samples\_sydney@alsglobal.com

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
PROJECT MANAGER: JOHN EWING  
SAMPLER: Kate Bilsdon  
COC emailed to ALS? (YES / NO) YES / NO  
Email Reports to (will default to PM if no other addresses are listed): symphony.dellanorth@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.dellanorth@erm.com

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

ALS QUOTE NO.:  
CONTACT PH: 0401 776 290  
SAMPLER MOBILE: 0405 240 794EOD FORMAT (or default):  
RELINQUISHED BY: K. Bilsdon  
DATE/TIME: 17/03/2014 17:00 18B

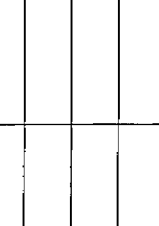
RECEIVED BY:  
DATE/TIME: 19:00

RECEIVED BY:  
DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LABORATORY USE ONLY (Client)  
COC SEQUENCE NUMBER (Circle):  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7

ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to codes below)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PCB	PROS/PROA	pH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VA-MW02-20	17/03/2014 15:00	S	NA	1501	X	X	X										
2	TREP SPIKE 1	17/3/14	S															BTEX
3	TREP BLANK	17/3/14	S															BTEX + TAH
4	TSC		S															
Environmental Division Sydney Work Order <b>ES1405876</b>  Telephone : +61-2-8784 8555																		
<b>TOTAL</b>																		

WATER CONTAINER CODES: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.







## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405877</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : TS <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 18-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 1
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VU\_MW02\_0.1

---

---

---

---

Client sampling date / time

17-MAR-2014 15:50

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405877-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	11.1	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	---	0.5	mg/kg	0.6	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VU\_MW02\_0.1

Client sampling date / time

17-MAR-2014 15:50

Compound	CAS Number	LOR	Unit	ES1405877-001				
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (LOR)		0.5	mg/kg	1.2				
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction		10	mg/kg	<10				
C10 - C14 Fraction		50	mg/kg	<50				
C15 - C28 Fraction		100	mg/kg	<100				
C29 - C36 Fraction		100	mg/kg	<100				
^ C10 - C36 Fraction (sum)		50	mg/kg	<50				
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10				
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10				
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50				
>C16 - C34 Fraction		100	mg/kg	<100				
>C34 - C40 Fraction		100	mg/kg	<100				
^ >C10 - C40 Fraction (sum)		50	mg/kg	<50				
^ >C10 - C16 Fraction minus Naphthalene (F2)		50	mg/kg	<50				
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
^ Sum of BTEX		0.2	mg/kg	<0.2				
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5				
Naphthalene	91-20-3	1	mg/kg	<1				
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	102				
2-Chlorophenol-D4	93951-73-6	0.1	%	104				
2,4,6-Tribromophenol	118-79-6	0.1	%	46.1				
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	87.8				
Anthracene-d10	1719-06-8	0.1	%	105				
4-Terphenyl-d14	1718-51-0	0.1	%	99.7				



### Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

**VU\_MW02\_0.1**

----

----

----

----

Client sampling date / time

17-MAR-2014 15:50

----

----

----

----

Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>77.0</b>	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	<b>80.6</b>	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	<b>85.1</b>	----	----	----	----





## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405877</b>	Page	: 1 of 9
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 18-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAR-2014
<b>Sampler</b>	: TS	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 1
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3350009)</b>									
ES1405878-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.2	1.4	0% - 50%
ES1405882-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.1	13.0	7.2	0% - 50%
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405881-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918) - continued</b>									
ES1405880-001	Anonymous	EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405881-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346917)</b>									
ES1405880-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405881-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347810)</b>									
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405883-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405881-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405883-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405883-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	97.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	112	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	106	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	107	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	103	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	91.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	91.7	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	79.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.4	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	104	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	92.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.4	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>									





Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810) - continued</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.2	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.6	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.8	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	82.3	63	131
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.3	68.4	128
<b>EP080: BTEXN (QCLot: 3347810)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.5	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.2	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.0	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.5	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>							
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>							



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810) - continued</b>								
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>								
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>								
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	70	130	
<b>EP080: BTEXN (QCLot: 3347810)</b>								
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	70	130	
	91-20-3	2.5 mg/kg	76.6	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>										
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	----	20	130	----	----



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>										
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3347810)</b>										
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.6	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405877</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: TS	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 1
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VU_MW02_0.1	17-MAR-2014	----	----	----	20-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VU_MW02_0.1	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW02_0.1	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW02_0.1	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VU_MW02_0.1	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP080) VU_MW02_0.1	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405877</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: TS</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 18-MAR-2014</b>	<b>Issue Date</b>	<b>: 19-MAR-2014 09:57</b>
<b>Client Requested Due Date</b>	<b>: 26-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 26-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.1°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 5</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 1</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - S-24 TRH/BTEX/PAH + Phenols
ES1405877-001	17-MAR-2014 15:50	VU_MW02_0.1		✓
ES1405877-002	17-MAR-2014 16:00	VU_MW02_0.5	✓	
ES1405877-003	17-MAR-2014 16:15	VU_MW02_1.0	✓	
ES1405877-004	17-MAR-2014 16:30	VU_MW02_1.3	✓	
ES1405877-005	17-MAR-2014 16:40	VU_MW02_1.4	✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

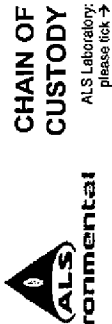
### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





**CHAIN OF CUSTODY**

DADELANDE 21 Bayrillia Road Bowral SA 5095  
Ph: 08 8353 0590 E: sales@als.com.au

DIRIBERRANG 32 Strand Street Stirling QLD 4033  
Ph: 07 3243 7222 E: samples@als.com.au

GLACOSTONE 46 Callanondah Drive Clinton QLD 4850  
Ph: 07 7471 5610 E: glaston@als.com.au

DIMACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@als.com.au

DIMELBOURNE 2-4 Westall Road Springvale VIC 3171  
Ph: 03 8849 9000 E: samples.melb@als.com.au

DIMUDGEE 27 Sydney Road Mudgie NSW 2880  
Ph: 02 6272 2625 E: mudgie@als.com.au

DIMENCASTLE 5 Rose Gum Road Waratook NSW 2304  
Ph: 02 4969 9433 E: samples.newcast@als.com.au

DIMOWRA 4/3 Geary Place North Nowra NSW 2541  
Ph: 02 4423 2063 E: nowra@als.com.au

DIPERTH 10 Hood Way Malaga WA 9000  
Ph: 08 9209 7695 E: samples.perth@als.com.au

LUSYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555 E: samples.syd@als.com.au

DTOWNSVILLE 14-16 Deanna Court Beahm QLD 4818  
Ph: 07 4798 0800 E: townsville@als.com.au

DWOLLONGONG 89 Kerry Street Wollongong NSW 2500  
Ph: 02 4226 3125 E: wollongong@als.com.au

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** THAYNE STRAW  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0459 960 035  
**EDD FORMAT (or default):** symphony.deltanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
Standard TAT (List due date):  Non Standard or urgent TAT (List due date):

**FOR LABORATORY USE ONLY (Circle)**  
Classify Soil (tick)?  Yes  No  
Preserve Moisture (tick) (preservation receipt)?  Yes  No  
Random Sample Temperature (tick)  Yes  No  
Other comment:  Yes  No

**COC SEQUENCE NUMBER (Circle)**  
COC: 2 3 4 5 6 7  
OF: 2 3 4 5 6 7

**RECEIVED BY:** Kawi  
**DATE/TIME:** 18/8 19:00

**RELINQUISHED BY:**  
**DATE/TIME:**

**RECEIVED BY:**  
**DATE/TIME:**

**Comments/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information	
1	VU-MW02-0-1	17/3/14 15:50	S	Ice	1	13 METALS (S-3) + 8 METALS (S-2)		
2	VU-MW02-0-5	16:00	S	↓	1	PHENOLS (S-24) TPH/TEX/PAH		
3	VU-MW02-1-0	16:15	S	↓	1	VOC		
4	VU-MW02-1-3	16:30	S	↓	1	ASBESTOS		
5	VU-MW02-1-4	16:40	S	↓	1	PCB		
			S			FOS/PFOA		
			S			PH/CEC		
			S			PSD sieve / TOC		
			S			EC Saturated Paste		
			S			Ultra Trace PAH		
			S			Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
<b>Environmental Division Sydney Work Order ES1405877</b>								Telephone : +61-2-8784 8555
<b>TOTAL</b>					<b>5</b>			

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405878</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : DB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 18-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 3 <b>No. of samples analysed</b> : 3
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Organics
		Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005: Poor precision was obtained for Manganese on sample ES14055804 - 4 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.**





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VJ_MW01_5.0	VJ_MW06_3.0	VJ_MW07_3.0	---	---
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405878-001	ES1405878-002	ES1405878-003	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	16.3	13.4	14.2	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	---	---
Barium	7440-39-3	10	mg/kg	20	<10	<10	---	---
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	---	---
Boron	7440-42-8	50	mg/kg	<50	<50	<50	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	8	6	3	---	---
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	---	---
Copper	7440-50-8	5	mg/kg	8	<5	<5	---	---
Lead	7439-92-1	5	mg/kg	13	<5	<5	---	---
Manganese	7439-96-5	5	mg/kg	<5	16	<5	---	---
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	---	---
Nickel	7440-02-0	2	mg/kg	7	<2	<2	---	---
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	---	---
Vanadium	7440-62-2	5	mg/kg	32	19	<5	---	---
Zinc	7440-66-6	5	mg/kg	5	5	<5	---	---
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VJ_MW01_5.0	VJ_MW06_3.0	VJ_MW07_3.0	---	---
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405878-001	ES1405878-002	ES1405878-003	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VJ_MW01_5.0	VJ_MW06_3.0	VJ_MW07_3.0	---	---
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405878-001	ES1405878-002	ES1405878-003	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	91.0	84.7	106	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	93.0	85.7	103	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	80.5	72.6	88.0	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.2	91.1	108	---	---
Anthracene-d10	1719-06-8	0.1	%	85.7	79.8	94.4	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	90.7	88.7	99.1	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	74.4	77.1	78.2	---	---
Toluene-D8	2037-26-5	0.1	%	77.0	79.8	79.0	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	85.7	87.8	87.8	---	---



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405878</b>	Page	: 1 of 11
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 18-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAR-2014
<b>Sampler</b>	: DB	<b>No. of samples received</b>	: 3
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 3
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Organics
		Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3350009)</b>									
ES1405878-002	VJ_MW06_3.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.2	1.4	0% - 50%
ES1405882-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.1	13.0	7.2	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3347467)</b>									
ES1405728-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	140	150	0.0	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	16	17	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	10	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	39	10.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	24	5.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	35	35	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	50	50	0.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	57	62	8.4	0% - 50%
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1405804-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	30	49.2	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	41	36	11.7	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	17	10	45.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	<5	59.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	<5	32.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	29	20	34.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	98	129	# 27.5	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	73	62	16.5	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	49	28	54.3	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347468)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347468) - continued</b>									
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346937)</b>									
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405804-008	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
ES1405804-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346937) - continued</b>									
ES1405804-001	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405804-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346936)</b>									
ES1405804-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	170	130	24.8	No Limit
ES1405804-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347810)</b>									
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405883-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346936)</b>									
ES1405804-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	150	120	23.2	No Limit
ES1405804-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346936) - continued</b>									
ES1405804-008	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347810)</b>									
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405883-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3347810)</b>									
ES1405878-001	VJ_MW01_5.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405883-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	116	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	120	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	118	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	112	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	110	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	114	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	123	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	106	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	122	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	104	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.1	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	111	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	107	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	112	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	# 113	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	108	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	107	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	75.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	79.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	83.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	83.0	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	89.1	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	87.2	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	110	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.7	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.9	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	109	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	105	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	107	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	97.3	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	93.4	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	99.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	101	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.3	68.4	128	
<b>EP080: BTEXN (QCLot: 3347810)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	83.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.5	62	138	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>							
ES1405728-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	113	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	116	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	115	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	105	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	109	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>							
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>							
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	112	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.2	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>							
ES1405804-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.7	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>							
ES1405804-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.5	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	99.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.0	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>							
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>							
ES1405804-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.8	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>							
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	70	130
<b>EP080: BTEXN (QCLot: 3347810)</b>							
ES1405878-001	VJ_MW01_5.0	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3347810) - continued</b>							
ES1405878-001	VJ_MW01_5.0	EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	72.3	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.6	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS MSD		Recovery Limits (%) Low High		RPDs (%) Value Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346936)</b>											
ES1405804-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	89.5	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	99.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	82.0	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346936)</b>											
ES1405804-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	99.0	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.0	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.8	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346937)</b>											
ES1405804-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	112	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	81.5	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.2	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346937)</b>											
ES1405804-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.7	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3347467)</b>											
ES1405728-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	113	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	116	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	107	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	115	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	105	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	109	----	70	130	----	----	





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347468)</b>										
ES1405728-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>										
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>										
ES1405878-001	VJ_MW01_5.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3347810)</b>										
ES1405878-001	VJ_MW01_5.0	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	72.3	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.6	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405878</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: DB	No. of samples received	: 3
Order number	: 0237747	No. of samples analysed	: 3
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	----	----	----	20-MAR-2014	31-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	19-MAR-2014	13-SEP-2014	✓	20-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	19-MAR-2014	14-APR-2014	✓	21-MAR-2014	14-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP071) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP080) VJ_MW01_5.0, VJ_MW07_3.0	VJ_MW06_3.0,	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Duplicate (DUP) RPDs</b>							
EG005T: Total Metals by ICP-AES	ES1405804-004	Anonymous	<b>Manganese</b>	7439-96-5	27.5 %	0-20%	<b>RPD exceeds LOR based limits</b>
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	3997942-007	----	<b>2,4-Dichlorophenol</b>	120-83-2	113 %	68-112%	<b>Recovery greater than upper control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405878**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : DB</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 18-MAR-2014</b></p> <p><b>Client Requested Due Date : 26-MAR-2014</b></p>	<p><b>Issue Date : 19-MAR-2014 09:53</b></p> <p><b>Scheduled Reporting Date : <b>26-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.1°C - Ice present</b></p> <p><b>No. of samples received : 3</b></p> <p><b>No. of samples analysed : 3</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols
ES1405878-001	17-MAR-2014 15:00	VJ_MW01_5.0	✓	✓	✓
ES1405878-002	17-MAR-2014 15:00	VJ_MW06_3.0	✓	✓	✓
ES1405878-003	17-MAR-2014 15:00	VJ_MW07_3.0	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

DADELADE 21 Burnside Road, Adelaide SA 5065  
 Ph: 08 8350 0900 E: adelaide@alsglobal.com  
 DEERIDONG 32 Spink Street, Sturtville QLD 4655  
 Ph: 07 5243 7232 E: sturtville@alsglobal.com  
 DESADSTONE 46 Cadell Street, Dismal Creek QLD 4680  
 Ph: 07 7471 5800 E: dsmal@alsglobal.com

DIMACKAY 78 Halibour Road Mackay QLD 4740  
 Ph: 07 4544 0177 E: mackay@alsglobal.com  
 DIMELOURNE 24 Westall Road Springvale VIC 3171  
 Ph: 05 8545 1800 E: samples.melbourne@alsglobal.com  
 DIMIDSOLE 27 Sydney Road Mudgee NSW 2850  
 Ph: 02 6572 0730 E: mudgee@mail@alsglobal.com


DIMENAGASTLE 5 Ross Court Road Warabrook NSW 2504  
 Ph: 02 4658 9430 E: samples.menagastle@alsglobal.com  
 DIMOWRA 413 Geary Place North Newsa NSW 2584  
 Ph: 02 4423 2063 E: mowra@alsglobal.com  
 DIPERTH 10 Had Way Manage WA 6090  
 Ph: 08 8206 7655 E: samples.perth@alsglobal.com

DISYDNEY 277-289 Woodpark Road Smithfield NSW 2184  
 Ph: 02 8784 5855 E: samples.sydney@alsglobal.com  
 DITOWNSVILLE 14-15 Deema Court Birkie QLD 4818  
 Ph: 07 4785 0600 E: townsville.environmental@alsglobal.com  
 DIWOLLONGONGS 69 Korvy Street Wollongong NSW 2500  
 Ph: 02 4225 3125 E: port.kembla@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** Dave Brooks  
**COC emailed to ALS?** ( YES / NO )  
**Relinquished by:** Kemi  
**DATE/TIME:** 18/3 19:00  
**Relinquished by:** Kemi  
**DATE/TIME:** 18/3 19:00

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date);  Non Standard or urgent TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0407 795 671  
**EDD FORMAT (or default):** symphony.dellanorth@erm.com  
**Email Reports to (will default to PM if no other addresses are listed):** symphony.dellanorth@erm.com  
**Email Invoice to (will default to PM if no other addresses are listed):** symphony.dellanorth@erm.com

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/TEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PB	PFS/POA	pH/EC	PSD sive / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	V5-MW01-S.0	17/3/14	S	1 Jar			X	X										Environmental Division Sydney Work Order <b>ES1405878</b>  Telephone : +61-2-8784 8555
2	V5-MW06-S.0		S	"			X	X										
3	V5-MW07-S.0		S	"			X	X										
			S															
			S															
			S															
			S															
			S															
			S															
			S															
			S															
<b>TOTAL</b>																		

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1405879</b>	Page	: 1 of 22
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 28-MAR-2014
Sampler	: GP	No. of samples received	: 16
Site	: ----	No. of samples analysed	: 15
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	5.4	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.3	6.1	12.6	----	15.2
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	No	----
Asbestos Type	1332-21-4	-	--	----	-	----	-	----
Sample weight (dry)	----	0.01	g	----	990	----	921	----
APPROVED IDENTIFIER:	----	-	--	----	S.SPOONER	----	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.990	----	0.921	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	<0.1	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	<0.001	----
Trace Asbestos Detected	----	5	Fibres	----	No	----	No	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.7	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	1.2	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	<0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.4	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	2.4	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	<0.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	5	11	----	----	18
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	16	----	----	<5
Lead	7439-92-1	5	mg/kg	<5	6	----	----	5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Manganese	7439-96-5	5	mg/kg	21	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	15	----	----	4
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	16	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	41	----	----	<5
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	1.2	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<b>1.2</b>	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VJ_MW05_1.0	VD_MW05_0.1	VD_MW05_1.0	VL_MW01_0.1	VL_MW01_1.0
				17-MAR-2014 09:10	17-MAR-2014 12:20	17-MAR-2014 12:40	17-MAR-2014 11:45	17-MAR-2014 11:55
Compound	CAS Number	LOR	Unit	ES1405879-002	ES1405879-003	ES1405879-004	ES1405879-005	ES1405879-006
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	<0.0005	----	----
PFOA	335-67-1	0.0005	mg/kg	----	----	<0.0005	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	84.0	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	95.7	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	84.9	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	110	88.5	----	----	113
2-Chlorophenol-D4	93951-73-6	0.1	%	110	104	----	----	115
2,4,6-Tribromophenol	118-79-6	0.1	%	122	110	----	----	121
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.5	122	----	----	87.5
Anthracene-d10	1719-06-8	0.1	%	100	108	----	----	106
4-Terphenyl-d14	1718-51-0	0.1	%	89.2	62.0	----	----	95.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.6	91.7	----	----	96.1
Toluene-D8	2037-26-5	0.1	%	101	101	----	----	83.2
4-Bromofluorobenzene	460-00-4	0.1	%	94.1	95.3	----	----	86.2



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_170314_GP	VL_MW01_1.5	VE_MW03_0.2	VE_MW03_1.5	VA_SB01_0.1
				17-MAR-2014 11:55	17-MAR-2014 12:00	17-MAR-2014 13:25	17-MAR-2014 13:55	17-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405879-007	ES1405879-008	ES1405879-009	ES1405879-010	ES1405879-011
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	5.5	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.9	19.1	5.0	21.0	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Sample weight (dry)	----	0.01	g	----	----	----	----	1110
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	1.11
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	----	----	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.3	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.2	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.5	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	<0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	12	16	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	20	----	10	14	----
Copper	7440-50-8	5	mg/kg	<5	----	22	27	----
Lead	7439-92-1	5	mg/kg	5	----	12	14	----
Nickel	7440-02-0	2	mg/kg	5	----	11	16	----
Zinc	7440-66-6	5	mg/kg	<5	----	67	87	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_170314_GP	VL_MW01_1.5	VE_MW03_0.2	VE_MW03_1.5	VA_SB01_0.1
				17-MAR-2014 11:55	17-MAR-2014 12:00	17-MAR-2014 13:25	17-MAR-2014 13:55	17-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405879-007	ES1405879-008	ES1405879-009	ES1405879-010	ES1405879-011
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_170314_GP	VL_MW01_1.5	VE_MW03_0.2	VE_MW03_1.5	VA_SB01_0.1
				17-MAR-2014 11:55	17-MAR-2014 12:00	17-MAR-2014 13:25	17-MAR-2014 13:55	17-MAR-2014 14:20
Compound	CAS Number	LOR	Unit	ES1405879-007	ES1405879-008	ES1405879-009	ES1405879-010	ES1405879-011
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	117	----	111	109	----
2-Chlorophenol-D4	93951-73-6	0.1	%	116	----	112	111	----
2,4,6-Tribromophenol	118-79-6	0.1	%	120	----	113	112	----
<b>EP075(SIM)T: PAH Surrogates</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	D01_170314_GP	VL_MW01_1.5	VE_MW03_0.2	VE_MW03_1.5	VA_SB01_0.1
Client sampling date / time	17-MAR-2014 11:55	17-MAR-2014 12:00	17-MAR-2014 13:25	17-MAR-2014 13:55	17-MAR-2014 14:20
	ES1405879-007	ES1405879-008	ES1405879-009	ES1405879-010	ES1405879-011

Compound	CAS Number	LOR	Unit	ES1405879-007	ES1405879-008	ES1405879-009	ES1405879-010	ES1405879-011
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	86.9	----	85.5	83.8	----
Anthracene-d10	1719-06-8	0.1	%	105	----	104	100	----
4-Terphenyl-d14	1718-51-0	0.1	%	92.4	----	91.2	89.1	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.3	----	107	85.6	----
Toluene-D8	2037-26-5	0.1	%	104	----	123	96.9	----
4-Bromofluorobenzene	460-00-4	0.1	%	90.3	----	101	91.3	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----
Compound	CAS Number	LOR	Unit	ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	----	57	----
+150µm	----	1	%	----	----	----	51	----
+300µm	----	1	%	----	----	----	36	----
+425µm	----	1	%	----	----	----	24	----
+600µm	----	1	%	----	----	----	16	----
+1180µm	----	1	%	----	----	----	10	----
+2.36mm	----	1	%	----	----	----	6	----
+4.75mm	----	1	%	----	----	----	3	----
+9.5mm	----	1	%	----	----	----	2	----
+19.0mm	----	1	%	----	----	----	2	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	5.3	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.5	12.2	15.2	18.3	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	----	43	----
Sand (>75 µm)	----	1	%	----	----	----	51	----
Gravel (>2mm)	----	1	%	----	----	----	6	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	0.8	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	1.3	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	<0.1	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	0.3	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	2.5	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	<0.1	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	10	9	8	3	----
Copper	7440-50-8	5	mg/kg	13	<5	5	<5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----	
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----	
				ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----	
Compound	CAS Number	LOR	Unit						
<b>EG005T: Total Metals by ICP-AES - Continued</b>									
Lead	7439-92-1	5	mg/kg	5	<5	<5	<5	----	
Nickel	7440-02-0	2	mg/kg	9	<2	<2	<2	----	
Zinc	7440-66-6	5	mg/kg	48	44	43	41	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----	
<b>EP003: Total Organic Carbon (TOC) in Soil</b>									
Total Organic Carbon	----	0.02	%	----	----	----	0.12	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>									
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----	
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----	
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----	
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----	
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
<b>EP074B: Oxygenated Compounds</b>									
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----	
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----	
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----	
<b>EP074C: Sulfonated Compounds</b>									
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----	
<b>EP074D: Fumigants</b>									
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----	
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----	
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----	
<b>EP074E: Halogenated Aliphatic Compounds</b>									



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----
Compound	CAS Number	LOR	Unit	ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----	
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----	
				ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----	
Compound	CAS Number	LOR	Unit						
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>									
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----	
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----	
<b>EP074G: Trihalomethanes</b>									
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----	
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----	
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds</b>									
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----	
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	2.0	<0.5	<0.5	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	3.9	<0.5	<0.5	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	191	<0.5	<0.5	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	24.2	<0.5	<0.5	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	111	<0.5	<0.5	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	32.5	<0.5	<0.5	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	238	<0.5	<0.5	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	212	<0.5	<0.5	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	52.4	<0.5	<0.5	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	49.6	<0.5	<0.5	<0.5	----	

Client sampling date / time



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----
Compound	CAS Number	LOR	Unit	ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	50.9	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	23.7	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	36.7	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	18.8	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	3.7	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	21.9	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1070	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	55.7	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	55.7	0.6	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	55.7	1.2	1.2	1.2	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	530	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	280	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	810	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	180	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	580	<100	<100	120	----
>C34 - C40 Fraction	----	100	mg/kg	280	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	1040	<50	<50	120	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	170	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VA_SB01_0.25	VA_SB01_0.8	VU_MW01_0.5	VU_MW01_1.5	----
				17-MAR-2014 14:30	17-MAR-2014 14:45	17-MAR-2014 15:55	17-MAR-2014 16:15	----
Compound	CAS Number	LOR	Unit	ES1405879-012	ES1405879-013	ES1405879-014	ES1405879-015	----
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	6	<1	<1	<1	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	----	----	----	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	65.9	85.3	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	117	----	----	----
Toluene-D8	2037-26-5	0.1	%	123	120	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	114	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	96.0	99.9	102	106	----
2-Chlorophenol-D4	93951-73-6	0.1	%	109	113	114	106	----
2,4,6-Tribromophenol	118-79-6	0.1	%	125	117	113	110	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	78.8	83.6	84.7	86.8	----
Anthracene-d10	1719-06-8	0.1	%	96.0	102	104	107	----
4-Terphenyl-d14	1718-51-0	0.1	%	109	86.5	89.1	93.3	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.7	95.7	98.7	109	----
Toluene-D8	2037-26-5	0.1	%	118	116	110	114	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	113	109	109	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_170314\_GP

---

---

---

---

Client sampling date / time

17-MAR-2014 16:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405879-016	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_170314\_GP

---

---

---

---

Client sampling date / time

17-MAR-2014 16:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405879-016	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_170314\_GP**

----

----

----

----

Client sampling date / time

17-MAR-2014 16:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1405879-016	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	28.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	56.3	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	41.0	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	72.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	72.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	71.0	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	71.5	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	93.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	79.9	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VD_MW05_0.1 - 17-MAR-2014 12:20	Mid grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VL_MW01_0.1 - 17-MAR-2014 11:45	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VA_SB01_0.1 - 17-MAR-2014 14:20	Mid grey clay soil with grey rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1405879</b>	Page	: 1 of 22
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 28-MAR-2014
Sampler	: GP	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 15
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3353765)</b>									
ES1405888-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.3	5.2	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3355527)</b>									
ES1405819-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	24.2	25.9	6.9	0% - 20%
ES1405879-004	VD_MW05_1.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.6	12.2	3.2	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3355528)</b>									
ES1405879-015	VU_MW01_1.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.3	17.4	5.2	0% - 50%
ES1405963-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	21.7	4.2	0% - 20%
<b>ED007: Exchangeable Cations (QC Lot: 3350452)</b>									
ES1405879-004	VD_MW05_1.0	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.7	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.2	1.2	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.5	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354955)</b>									
ES1405661-025	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	8	59.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	6	16.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	5	19.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	56	39	36.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1405662-005	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354955) - continued</b>									
ES1405662-005	Anonymous	EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354957)</b>									
ES1405879-015	VU_MW01_1.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	41	46	10.6	No Limit
ES1405886-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	20	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	41	45	7.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	33	7.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	28	0.0	No Limit
EG005T: Zinc	7440-66-6	5	mg/kg	115	103	10.4	0% - 20%		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354956)</b>									
ES1405661-025	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405662-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354958)</b>									
ES1405879-015	VU_MW01_1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3351690)</b>									
ES1405879-015	VU_MW01_1.5	EP003: Total Organic Carbon	----	0.02	%	0.12	0.14	14.1	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3349462)</b>									
ES1405879-012	VA_SB01_0.25	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405962-005	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3347809) - continued</b>									
ES1405876-001	Anonymous	EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3347809) - continued</b>									
ES1405876-001	Anonymous	EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3347809)</b>									
ES1405876-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3349471)</b>									
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405999-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3349471) - continued</b>									
ES1405999-003	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3349471)</b>									
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.2	0.7	45.6	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.2	0.7	52.6	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405999-003	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3349471) - continued</b>										
ES1405999-003	Anonymous	EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405879-013	VA_SB01_0.8	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3349470)</b>										
ES1405879-002	VJ_MW05_1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405999-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405879-013	VA_SB01_0.8	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3349470)</b>										
ES1405879-002	VJ_MW05_1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405999-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405879-013	VA_SB01_0.8	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3347808) - continued</b>									
ES1405879-013	VA_SB01_0.8	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3348902)</b>									
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1405879-008	VL_MW01_1.5	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
<b>Sub-Matrix: WATER</b>									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3354507)</b>									
ES1405848-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	50.4	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.005	<0.005	0.0	No Limit
ES1406048-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.008	26.6	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.003	100	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347392)</b>									
EM1402153-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405660-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405867-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405867-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3350337) - continued</b>									
ES1405699-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
ES1405867-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3350452)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354955)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	106	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	113	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	105	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	118	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	113	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	120	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	119	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.4	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	117	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	72.7	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354957)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	125	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	128	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	124	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	118	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354956)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	97.4	66	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354958)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354958) - continued</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.7	66	112	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3351690)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	98.2	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3349462)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	74.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3347809)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.3	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	103	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	94.4	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	101	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	100	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	98.4	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3347809)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	84.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	121	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	120	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	126	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3347809)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54	126	
<b>EP074D: Fumigants (QCLot: 3347809)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	111	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	95.0	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	110	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	84.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	107	41	141	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809) - continued</b>									
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	115	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	100	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	122	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	109	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	106	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	99.3	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	104	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	107	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	104	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	109	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	106	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	108	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	117	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	119	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.9	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	96.1	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	97.4	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	98.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	109	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	111	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	96.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	105	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	79.2	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	106	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	104	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	105	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.5	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	98.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	103	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	88.7	54	134	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809) - continued</b>									
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3347809)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	103	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3349471)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	83.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	91.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	102	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	111	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	109	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	93.1	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	107	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	95.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	# 69.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3349471)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	84.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	89.6	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	83.9	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	81.6	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	95.1	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	109	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	111	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	100	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	81.1	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	110	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	90.6	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	90.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	106	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349470)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	100	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	99.1	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	101	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349470)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	102	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	101	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	90.1	63	131	
<b>EP080: BTEXN (QCLot: 3347808)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.9	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.4	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	73.2	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	79.1	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	86.4	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	85.8	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3354507)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.8	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	109	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.9	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.6	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.9	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3347058)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3347058) - continued</b>									
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	69.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	74.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	69.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	75.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.7	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	79.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	83.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	82.5	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	88.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	90.3	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3347058)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	77.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	85.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	79.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	85.5	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	81.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	86.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3347058) - continued</b>									
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	89.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	84.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	74.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	89.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	84.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	80.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	82.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	78.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347057)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.5	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	102	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347057)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	105	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127	
<b>EP080: BTEXN (QCLot: 3350337)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	124	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	123	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	115	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	113	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	123	70	124	





## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354955)</b>							
ES1405661-025	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	120	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	118	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	105	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354957)</b>							
ES1405879-015	VU_MW01_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	113	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	120	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	114	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	110	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	115	70	130
		<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354956)</b>					
ES1405661-025	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.2	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354958)</b>							
ES1405879-015	VU_MW01_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	97.8	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3349462)</b>							
ES1405879-012	VA_SB01_0.25	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	90.8	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>							
ES1405876-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>							
ES1405876-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	76.6	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3349471)</b>							
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	106	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	114	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	79.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	80.1	20	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3349471)</b>							
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>							
ES1405876-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349470)</b>							
ES1405879-002	VJ_MW05_1.0	EP071: C10 - C14 Fraction	----	640 mg/kg	83.9	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	76.2	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>							
ES1405876-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349470)</b>							
ES1405879-002	VJ_MW05_1.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	94.3	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.7	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.4	52	132
<b>EP080: BTEXN (QCLot: 3347808)</b>							
ES1405876-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	86.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.7	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	90.4	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.1	70	130
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>							
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	56	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3354507)</b>							
ES1405879-016	R01_170314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.4	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	107	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	95.5	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	128	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	104	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.0	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>								
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	70	130	
<b>EP080: BTEXN (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	70	130	
		EP080: Toluene	108-88-3	25 µg/L	100	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	119	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	125	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	105	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3347808)</b>										
ES1405876-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	86.5	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	88.7	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.7	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.4	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.6	----	70	130	----	----
	EP080: Naphthalene	91-20-3	2.5 mg/kg	83.1	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3347809)</b>										
ES1405876-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.2	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.2	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809)</b>										



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			MS	MSD	Low	High	Value	Control Limit
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3347809) - continued</b>											
ES1405876-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	76.6	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3348902)</b>											
ES1405660-034	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	85.9	----	54	146	----	----	
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	----	54	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	----	56	138	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3349462)</b>											
ES1405879-012	VA_SB01_0.25	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	90.8	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349470)</b>											
ES1405879-002	VJ_MW05_1.0	EP071: C10 - C14 Fraction	----	640 mg/kg	83.9	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	76.2	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	85.3	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349470)</b>											
ES1405879-002	VJ_MW05_1.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	94.3	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	76.7	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	71.4	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3349471)</b>											
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	114	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	79.0	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	80.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3349471)</b>											
ES1405879-002	VJ_MW05_1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354955)</b>											
ES1405661-025	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	120	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	118	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	105	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354956)</b>											
ES1405661-025	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.2	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354957)</b>											
ES1405879-015	VU_MW01_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354957) - continued</b>										
ES1405879-015	VU_MW01_1.5	EG005T: Cadmium	7440-43-9	50 mg/kg	113	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	120	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	114	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	110	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	115	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354958)</b>										
ES1405879-015	VU_MW01_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	97.8	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>										
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>										
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>										
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3350337)</b>										
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	119	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	125	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	105	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3354507)</b>										
ES1405879-016	R01_170314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.4	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	107	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	95.5	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	128	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	104	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.0	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405879</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 28-MAR-2014
Sampler	: GP	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 15
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VD_MW05_1.0, VU_MW01_1.5	VL_MW01_1.5,	17-MAR-2014	24-MAR-2014	24-MAR-2014	✓	24-MAR-2014	24-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VJ_MW05_1.0, VD_MW05_1.0, D01_170314_GP, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, VL_MW01_1.0, VL_MW01_1.5, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	----	----	----	24-MAR-2014	31-MAR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VU_MW01_1.5		17-MAR-2014	---	13-SEP-2014	----	28-MAR-2014	22-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VU_MW01_1.5		17-MAR-2014	---	13-SEP-2014	----	28-MAR-2014	22-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VD_MW05_0.1, VA_SB01_0.1	VL_MW01_0.1,	17-MAR-2014	---	13-SEP-2014	----	27-MAR-2014	23-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VD_MW05_1.0, VU_MW01_1.5	VL_MW01_1.5,	17-MAR-2014	21-MAR-2014	14-APR-2014	✓	24-MAR-2014	14-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VJ_MW05_1.0, VL_MW01_1.0, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, D01_170314_GP, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	24-MAR-2014	13-SEP-2014	✓	25-MAR-2014	13-SEP-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VJ_MW05_1.0, VD_MW05_0.1, VL_MW01_1.0, D01_170314_GP, VE_MW03_0.2, VE_MW03_1.5, VA_SB01_0.25, VA_SB01_0.8, VU_MW01_0.5, VU_MW01_1.5	17-MAR-2014	24-MAR-2014	14-APR-2014	✓	25-MAR-2014	14-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VU_MW01_1.5	17-MAR-2014	21-MAR-2014	14-APR-2014	✓	25-MAR-2014	14-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	25-MAR-2014	30-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VJ_MW05_1.0, VD_MW05_0.1, VL_MW01_1.0, D01_170314_GP, VE_MW03_0.2, VE_MW03_1.5, VA_SB01_0.25, VA_SB01_0.8, VU_MW01_0.5, VU_MW01_1.5	17-MAR-2014	24-MAR-2014	31-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.25, VA_SB01_0.8	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.8	VA_SB01_0.25,	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VD_MW05_0.1, VA_SB01_0.8	VA_SB01_0.25,	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	23-MAR-2014	24-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VJ_MW05_1.0, VL_MW01_1.0, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, D01_170314_GP, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	24-MAR-2014	31-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VJ_MW05_1.0, VL_MW01_1.0, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, D01_170314_GP, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	24-MAR-2014	31-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VJ_MW05_1.0, VL_MW01_1.0, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, D01_170314_GP, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VJ_MW05_1.0, VL_MW01_1.0, VE_MW03_0.2, VA_SB01_0.25, VU_MW01_0.5,	VD_MW05_0.1, D01_170314_GP, VE_MW03_1.5, VA_SB01_0.8, VU_MW01_1.5	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP231)</b> VD_MW05_1.0, VA_SB01_0.25	VL_MW01_1.5,	17-MAR-2014	20-MAR-2014	13-SEP-2014	✓	20-MAR-2014	29-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_170314_GP	17-MAR-2014	24-MAR-2014	13-SEP-2014	✓	25-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_170314_GP	17-MAR-2014	----	----	----	19-MAR-2014	14-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_170314_GP	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_170314_GP	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_170314_GP	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_170314_GP	17-MAR-2014	23-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_170314_GP	17-MAR-2014	23-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	26	11.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	26	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)



Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MS/MS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	4000880-007	----	<b>Pentachlorophenol</b>	87-86-5	69.0 %	10-57%	<b>Recovery greater than upper control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)T: PAH Surrogates	ES1405879-003	VD_MW05_0.1	<b>4-Terphenyl-d14</b>	1718-51-0	62.0 %	65-129 %	<b>Recovery less than lower data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1405879</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: GP		

#### Dates

Date Samples Received	: 18-MAR-2014	Issue Date	: 19-MAR-2014 10:49
Client Requested Due Date	: 28-MAR-2014	Scheduled Reporting Date	: <b>28-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.1°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 16
Security Seal	: Intact.	No. of samples analysed	: 15

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01\_170314\_GP will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil
ES1405879-001	17-MAR-2014 10:00	VB_MW02_0.7	✓							
ES1405879-002	17-MAR-2014 09:10	VJ_MW05_1.0							✓	
ES1405879-003	17-MAR-2014 12:20	VD_MW05_0.1					✓			
ES1405879-004	17-MAR-2014 12:40	VD_MW05_1.0		✓	✓			✓		
ES1405879-005	17-MAR-2014 11:45	VL_MW01_0.1					✓			
ES1405879-008	17-MAR-2014 12:00	VL_MW01_1.5		✓	✓			✓		
ES1405879-011	17-MAR-2014 14:20	VA_SB01_0.1					✓			
ES1405879-015	17-MAR-2014 16:15	VU_MW01_1.5		✓		✓		✓		✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorocyclo Acids and Sulfonates by LC/MS/MS	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/N/PAH + Phenols	SOIL - S-27 TRH/BTEX/N/PAH/Phenols/8Metals
ES1405879-002	17-MAR-2014 09:10	VJ_MW05_1.0				✓	✓	
ES1405879-003	17-MAR-2014 12:20	VD_MW05_0.1		✓			✓	
ES1405879-004	17-MAR-2014 12:40	VD_MW05_1.0			✓			
ES1405879-006	17-MAR-2014 11:55	VL_MW01_1.0					✓	
ES1405879-007	17-MAR-2014 11:55	D01_170314_GP					✓	
ES1405879-008	17-MAR-2014 12:00	VL_MW01_1.5			✓			
ES1405879-009	17-MAR-2014 13:25	VE_MW03_0.2					✓	
ES1405879-010	17-MAR-2014 13:55	VE_MW03_1.5					✓	
ES1405879-012	17-MAR-2014 14:30	VA_SB01_0.25	✓	✓	✓		✓	
ES1405879-013	17-MAR-2014 14:45	VA_SB01_0.8	✓	✓			✓	
ES1405879-014	17-MAR-2014 15:55	VU_MW01_0.5					✓	
ES1405879-015	17-MAR-2014 16:15	VU_MW01_1.5					✓	



Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEX/PAH/Phenols/Total 8 Metals
ES1405879-016	17-MAR-2014 16:00	R01_170314_GP	✓

Matrix: **WATER**

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Attachment - Report ( SUBCO ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

#### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- A4 - AU Tax Invoice ( INV ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- Attachment - Report ( SUBCO ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- Chain of Custody (CoC) ( COC ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- EDI Format - ENMRG ( ENMRG ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- EDI Format - ESDAT ( ESDAT ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)
- EDI Format - XTab ( XTAB ) Email [symphony.deltanorth@erm.com](mailto:symphony.deltanorth@erm.com)

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email [au.accounts@erm.com](mailto:au.accounts@erm.com)



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

DADELADE 21 Burnie Road, Burnie, TAS 5245  
Ph: 08 8359 0885 E: adelaide@alsglobal.com  
DEBISBANE 32 Strand Street, Hobart, TAS 5200  
Ph: 07 5243 7222 E: hobart@alsglobal.com  
GLADSTONE 48 Collins Street, Gladstone, QLD 4680  
Ph: 07 471 5600 E: gladstone@alsglobal.com

DMACKAY 78 Harbour Road, Mackay, QLD 4740  
Ph: 07 4941 0177 E: mackay@alsglobal.com  
DUNEBOURNE 2-4 Westall Road, Springvale, VIC 3171  
Ph: 53 8818 8000 E: samples.melbourne@alsglobal.com  
DUNDEE 27 Sydney Road, Mudgee, NSW 2850  
Ph: 02 8572 9759 E: mudgee@alsglobal.com

ONE/CASTLE E Ross, Gunit Road, Warabook, NSW 2304  
Ph: 02 4698 9539 E: samples.newcastle@alsglobal.com  
KNOXRA 4719 Geary Place, North Newry, NSW 2541  
Ph: 02 4423 2650 E: northnewry@alsglobal.com  
DPERYH 10 Wood Way, Malaga, WA 6006  
Ph: 08 8208 7656 E: samples.perth@alsglobal.com

DRYDNEY 277-288 Woodpark Road, Smithfield, NSW 2164  
Ph: 02 8766 8555 E: samples.sydneypres@alsglobal.com  
DOWNSVILLE 14-15 Desme Court, Bohle, QLD 4818  
Ph: 07 4796 0600 E: bohle@alsglobal.com  
DWOULLONGONG 56 Kennedy Street, Wollongong, NSW 2520  
Ph: 02 4225 3125 E: wollongong@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** Gavin Powell  
**COC emailed to ALS?** ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non-Standard or urgent TAT (List due date):  
Ultra Trace Organics


**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 083 752  
**EDD FORMAT (for default):**

**RECEIVED BY:** Ravi  
**DATE/TIME:** 18/3 19:00

**RELINQUISHED BY:**  
**DATE/TIME:**

**RECEIVED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information	
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFO5/PFOA	pH/EC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH
1	VB_MW02_0.7	17/3/14 1000	s	B, 2x jar (1 no lined)	3	X	X	X	X	X	X	X	X	X	X	X	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.  <b>Environmental Division</b> <b>Sydney</b> <b>Work Order</b> <b>ES1405879</b>  Telephone : + 61-2-8784 8555
2	VL_MW05_1.0	0910	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	
3	VD_MW05_0.1	1220	s	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	
4	VD_MW05_1.0	1240	s	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	
5	VL_MW01_0.1	1145	s	B	1	X	X	X	X	X	X	X	X	X	X	X	
6	VL_MW01_1.0	1155	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	
7	001-178314_CP	1155	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	
8	VL_MW01_1.5	1200	s	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	
9	VE_MW03_0.2	1325	s	B, 2x jar	3	X	X	X	X	X	X	X	X	X	X	X	
10	VE_MW03_1.5	1355	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	
11	VA-SR01_0.1	1420	s	B	1	X	X	X	X	X	X	X	X	X	X	X	
12	VA-SR01_0.25	1430	s	2x jar (1 no lined)	2	X	X	X	X	X	X	X	X	X	X	X	
					<b>TOTAL</b>												

**WATER CONTAINER CODES:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cl Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Solns; B = Unpreserved Bag.



**CHAIN OF CUSTODY**

DADELAIDE 21, Bldg 100 Road, Rockdale SA 5096  
 Ph: 08 8353 0590 E: dadelade@alsglobal.com  
 DUNEDIN 33, St Andrew Street, Stafford QLD 4053  
 Ph: 07 3243 1222 E: sampres@alsglobal.com  
 GARDENBURGH 25, 170-172, Gardenburgh Drive, Clifton QLD 4059  
 Ph: 07 7471 5600 E: garden@alsglobal.com

DMACKAY 78 Harbour Road, Mackay QLD 4740  
 Ph: 07 4944 0177 E: dmackay@alsglobal.com  
 DUNEBOURNE 24, Westall Road, Springvale VIC 3171  
 Ph: 03 8849 5900 E: sampres\_melbourne@alsglobal.com  
 GARDENBURGH 25, 170-172, Gardenburgh Drive, Clifton QLD 4059  
 Ph: 07 7471 5600 E: garden@alsglobal.com

ONEWCASTLE 5, Rose Court Road, Wyarwong NSW 2304  
 Ph: 02 4968 9403 E: sampres\_newcastle@alsglobal.com  
 DUNOYRA 473, Geary Place, North Murrumbidgee NSW 2541  
 Ph: 02 4423 2063 E: newm@alsglobal.com  
 DPERTH 10, Hind Way, Manjimba WA 6090  
 Ph: 08 9209 7655 E: sampres\_perth@alsglobal.com

SYDNEY 277-280 Woodbank Road, Smithfield NSW 2164  
 Ph: 02 8764 8580 E: sampres\_sydney@alsglobal.com  
 TOWNSVILLE 14-15 Deamo Court, Bona QLD 4818  
 Ph: 07 4796 0800 E: townsville.environment@alsglobal.com  
 WOLLONGONG 99, Kerry Street, Wollongong NSW 2500  
 Ph: 02 4226 3125 E: kerry@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** Gavin Powell  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0401 683752  
**EDD FORMAT (or default):**  
**COC emailed to ALS? (YES/NO)**  
**Email Reports to (will default to PM if no other addresses are listed):** symphony.deltanorth@erm.com  
**Email Invoice to (will default to PM if no other addresses are listed):** symphony.deltanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non-Standard or urgent TAT (List due date):  
 AL'S QUOTE NO.:

**RECEIVED BY:** Raw  
**DATE/TIME:** 18/3/14 19:00  
**RELINQUISHED BY:**  
**DATE/TIME:**

**FOR LABORATORY USE ONLY (Circle)**  
 Cleanly sealed? Yes No  
 Free of preservatives and/or preservative residues? Yes No  
 Random Sample Temperature on Receipt? Yes No  
 Original container? Yes No

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOs/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
13	VA_S01_0-8	17/3/14 1445	S	1x jar	1	X		X		X									
14	VU_MW01_0-5	1555	S	1x jar	1	X		X											
15	VU_MW01-1-5	1615	S	2x jars, B	3	X		X					X						
16	T01_170314_GP	1555	S	1x jar	1	X		X											
16	R01_170314_GP	1600	W	2x V, N, AG	4	X		X											*To EnviroLab*
			S																
			S																
			S																
			S																
			S																
			S																
			S																
<b>TOTAL</b>																			

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Stripper Solids; B = Unpreserved Bag







### CHAIN OF CUSTODY

LADELAKE 21 Burrum Road, Portricks SA 5095  
Ph: 08 8350 0800 E: adelaide@alsglobal.com

DUNEDIN 32 Strand Street, Sturford QLD 4063  
Ph: 07 3203 7222 E: adunedin@alsglobal.com

SYDNEY 156-158 Collins Street, Melbourne VIC 3000  
Ph: 07 7471 7600 E: sydney@alsglobal.com

DMACKAY 78 Harbour Road, Mackay QLD 4700  
Ph: 07 4944 0177 E: mackay@alsglobal.com

QUEENSLAND 24 Westall Road, Springfield VIC 3171  
Ph: 08 8846 8800 E: samuel@alsglobal.com

DMULDREE 27 Sydney Road, Murdoch NSW 2185  
Ph: 02 9372 6735 E: muldree@alsglobal.com

ENNEWCASTLE 5 Robt Court, Road Watercock NSW 2304  
Ph: 02 4630 3433 E: newcastle@alsglobal.com

CHIMWRA 418 Casey Place North Nowra NSW 2541  
Ph: 02 4233 3063 E: nowra@alsglobal.com

CHPERTH 10 Hor Way Malaga WA 6000  
Ph: 08 9209 7655 E: sampson@alsglobal.com

SYDNEY 277-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8595 E: sampson@alsglobal.com

TOOWONG 14-16 Desama Court, Toowoomba QLD 4768  
Ph: 07 4795 0600 E: toowoomba@alsglobal.com

WOLLONGONG 99 Kenny Street, Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkemb@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** Gavin Powell  
**COC emailed to ALS?** (YES)  (NO)   
**Email Reports to** (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com  
**Email Invoice to** (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**ALS QUOTE NO.:** 0401683752  
**CONTACT PH:** 0401 776 280  
**SAMPLER MOBILE:** 0401 683752  
**EDD FORMAT (or default):**

**RECEIVED BY:** *Ran*  
**DATE/TIME:** 18/3 19:02

**RELINQUISHED BY:**  
**DATE/TIME:**

**FOR LABORATORY USE ONLY (Circle):**  
 Outdry Sealed?  Yes  No  
 Free to use/analyse/hold/press upon receipt?  Yes  No  
 Random Sample Temperature on Receipt?  Yes  No  
 Other comment:  N/A

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE	SAMPLE DETAILS (MATRIX/SOLID/S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	THH/TEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
13	VA_S01_0-8	17/3/14 1445	S	1x jar	1	X		X		X								
14	VU_MW01_0-5	1555	S	1x jar	1	X		X										
15	VU_MW01-1-5	1615	S	2x jar, B	3	X		X		X								
R	TR01_170314_GIP	1555	S	1x jar	1	X		X										
16	R01_170314_GIP	1600	W	2x V, N, AG	4	X		X										*To EnviroLab*
			S															
			S															
			S															
			S															
			S															
			S															
<b>TOTAL</b>																		

**ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) or Dissolved (field filtered bottle required).**  
 Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

**CONTAINER INFORMATION**

Water, Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; DR = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airtight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisphosphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

# Certificate of Analysis

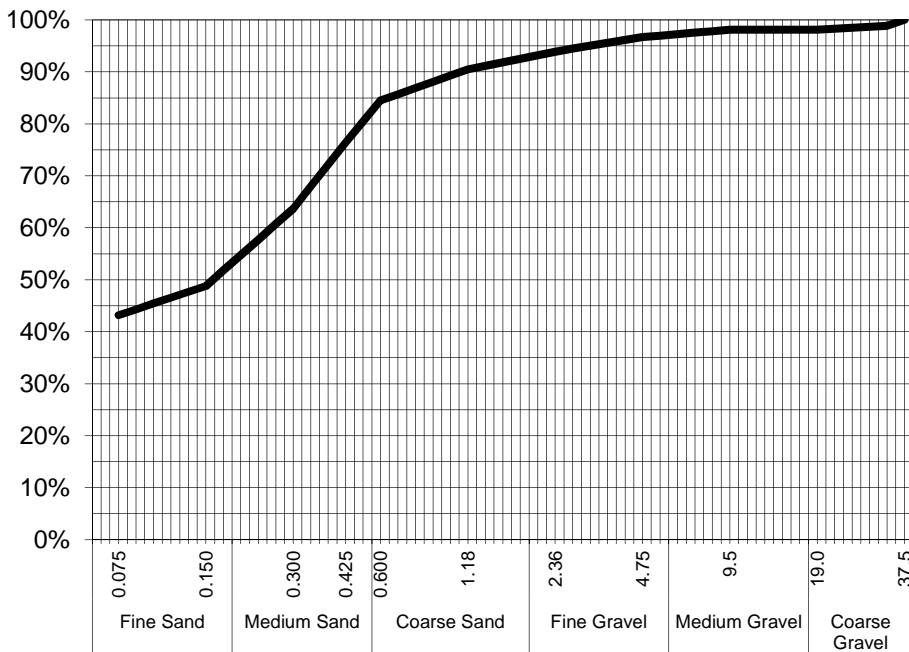
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 28-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 18-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1405879-015 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VU\_MW01\_1.5

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
37.5	100%
19.0	98%
9.5	98%
4.75	97%
2.36	94%
1.18	91%
0.600	85%
0.425	76%
0.300	64%
0.150	49%
0.075	43%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 26-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405880</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : WG <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 18-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 5
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VK_MW06_2.0	VJ_MW10_2.8	VJ_MW09_2.0	VJ_MW08_3.0	----
				17-MAR-2014 09:55	17-MAR-2014 12:10	17-MAR-2014 14:30	17-MAR-2014 16:45	----
				ES1405880-001	ES1405880-002	ES1405880-003	ES1405880-004	----
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.3	16.8	10.7	20.9	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	<10	<10	<10	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	2	4	24	----
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg	----	<5	<5	14	----
Manganese	7439-96-5	5	mg/kg	----	<5	7	<5	----
Molybdenum	7439-98-7	2	mg/kg	----	<2	<2	<2	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	----
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	<5	12	52	----
Zinc	7440-66-6	5	mg/kg	----	<5	5	<5	----
Thallium	7440-28-0	5	mg/kg	----	<5	<5	<5	----
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	5	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW06_2.0	VJ_MW10_2.8	VJ_MW09_2.0	VJ_MW08_3.0	----
				17-MAR-2014 09:55	17-MAR-2014 12:10	17-MAR-2014 14:30	17-MAR-2014 16:45	----
Compound	CAS Number	LOR	Unit	ES1405880-001	ES1405880-002	ES1405880-003	ES1405880-004	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW06_2.0	VJ_MW10_2.8	VJ_MW09_2.0	VJ_MW08_3.0	----
				17-MAR-2014 09:55	17-MAR-2014 12:10	17-MAR-2014 14:30	17-MAR-2014 16:45	----
Compound	CAS Number	LOR	Unit	ES1405880-001	ES1405880-002	ES1405880-003	ES1405880-004	----
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	97.0	107	111	108	----
2-Chlorophenol-D4	93951-73-6	0.1	%	99.4	105	108	105	----
2,4,6-Tribromophenol	118-79-6	0.1	%	73.2	71.3	70.3	66.8	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	94.3	95.8	100	98.0	----
Anthracene-d10	1719-06-8	0.1	%	105	104	111	107	----
4-Terphenyl-d14	1718-51-0	0.1	%	99.0	99.8	105	92.3	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	77.8	80.3	83.5	87.6	----
Toluene-D8	2037-26-5	0.1	%	84.3	81.7	86.6	81.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.4	85.1	97.2	87.8	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_17.03.14\_WG

---

---

---

---

Client sampling date / time

17-MAR-2014 11:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405880-005	---	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	---	---	---	---
Barium	7440-39-3	0.001	mg/L	<0.001	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_17.03.14\_WG

---

---

---

---

Client sampling date / time

17-MAR-2014 11:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405880-005	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_17.03.14\_WG

----

----

----

----

Client sampling date / time

17-MAR-2014 11:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1405880-005	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	25.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	49.6	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	55.2	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	65.2	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	64.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	64.8	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	72.1	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	92.0	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	72.4	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405880</b>	Page	: 1 of 15
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 18-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAR-2014
<b>Sampler</b>	: WG	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 5
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC





### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3350009)</b>									
ES1405878-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.2	1.4	0% - 50%
ES1405882-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.1	13.0	7.2	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354365)</b>									
ES1405880-001	VK_MW06_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	13	90.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	14	10.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1405882-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	11	29.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	17	8	67.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	6	18.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	44	26	52.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354366)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354366) - continued</b>									
ES1405880-001	VK_MW06_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405882-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346918)</b>									
ES1405880-001	VK_MW06_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405881-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918)</b>									
ES1405880-001	VK_MW06_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918) - continued</b>									
ES1405880-001	VK_MW06_2.0	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405881-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346917)</b>									
ES1405880-001	VK_MW06_2.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405881-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3347810)</b>									
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405883-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346917)</b>									
ES1405880-001	VK_MW06_2.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346917) - continued</b>									
ES1405881-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3347810)</b>									
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405883-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3347810)</b>									
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1405883-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>Sub-Matrix: <b>WATER</b></b>									
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347392)</b>									
EM1402153-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405660-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405867-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405867-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3350337)</b>									
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit

Page : 7 of 15  
 Work Order : ES1405880  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3350337) - continued</b>									
ES1405699-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405867-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.2	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	97.5	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.4	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.4	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.6	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	91.8	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	102	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	90.3	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	94.7	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	93.9	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	97.5	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	92.2	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	102	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	88.9	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	74.4	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.4	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	97.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	112	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	106	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	107	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	103	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	91.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	91.7	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	79.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.4	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	104	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	92.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.4	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	82.3	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.3	68.4	128	
<b>EP080: BTEXN (QCLot: 3347810)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.5	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	83.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.5	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.9	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3347058)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	69.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	74.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	69.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	75.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.7	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	79.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	83.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	82.5	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	88.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	90.3	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3347058)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	77.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	85.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	79.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	85.5	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	81.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3347058) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	86.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	89.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	84.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	74.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	89.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	84.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	80.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	82.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	78.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347057)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.5	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	102	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347057)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	105	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127	
<b>EP080: BTEXN (QCLot: 3350337)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	124	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	123	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3350337) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	115	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	113	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	123	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>							
ES1405880-001	VK_MW06_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	91.1	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.5	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	100	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	89.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	87.6	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	89.1	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	88.3	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>							
ES1405880-001	VK_MW06_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>							
ES1405880-001	VK_MW06_2.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>							
ES1405880-001	VK_MW06_2.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>							
ES1405880-001	VK_MW06_2.0	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810) - continued</b>								
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>								
ES1405880-001	VK_MW06_2.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>								
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	70	130	
<b>EP080: BTEXN (QCLot: 3347810)</b>								
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	70	130	
	91-20-3	2.5 mg/kg	76.6	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>								
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	70	130	
<b>EP080: BTEXN (QCLot: 3350337)</b>								
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	70	130	
		EP080: Toluene	108-88-3	25 µg/L	100	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	119	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	125	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70	130	
	91-20-3	25 µg/L	105	70	130			

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>											
ES1405880-001	VK_MW06_2.0	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>											
ES1405880-001	VK_MW06_2.0	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>											
ES1405880-001	VK_MW06_2.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>											
ES1405880-001	VK_MW06_2.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3347810)</b>											
ES1405878-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3347810)</b>											
ES1405878-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.5	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3347810)</b>											
ES1405878-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	75.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.0	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.8	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	76.6	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>											
ES1405880-001	VK_MW06_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	91.1	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.4	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	96.5	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	100	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	89.9	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	87.6	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	89.1	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	88.3	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>											



Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366) - continued</b>										
ES1405880-001	VK_MW06_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	----	70	130	----	----

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>											
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350337)</b>											
ES1405699-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350337)</b>											
ES1405699-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3350337)</b>											
ES1405699-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	119	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	125	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	105	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405880</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: WG	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 5
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	----	----	----	20-MAR-2014	31-MAR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	24-MAR-2014	13-SEP-2014	✓	25-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	24-MAR-2014	14-APR-2014	✓	25-MAR-2014	14-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_MW06_2.0, VJ_MW09_2.0,	VJ_MW10_2.8, VJ_MW08_3.0	17-MAR-2014	20-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_17.03.14_WG	17-MAR-2014	21-MAR-2014	13-SEP-2014	✓	22-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_17.03.14_WG	17-MAR-2014	----	----	----	19-MAR-2014	14-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_17.03.14_WG	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_17.03.14_WG	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_17.03.14_WG	17-MAR-2014	21-MAR-2014	24-MAR-2014	✓	21-MAR-2014	30-APR-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_17.03.14_WG	17-MAR-2014	23-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_17.03.14_WG	17-MAR-2014	23-MAR-2014	31-MAR-2014	✓	23-MAR-2014	31-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405880**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : WG</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 18-MAR-2014</b></p> <p><b>Client Requested Due Date : 26-MAR-2014</b></p>	<p><b>Issue Date : 19-MAR-2014 09:49</b></p> <p><b>Scheduled Reporting Date : 26-MAR-2014</b></p>
---	---

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.1°C - Ice present</b></p> <p><b>No. of samples received : 5</b></p> <p><b>No. of samples analysed : 5</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1405880-001	17-MAR-2014 09:55	VK_MW06_2.0				✓
ES1405880-002	17-MAR-2014 12:10	VJ_MW10_2.8	✓	✓	✓	
ES1405880-003	17-MAR-2014 14:30	VJ_MW09_2.0	✓	✓	✓	
ES1405880-004	17-MAR-2014 16:45	VJ_MW08_3.0	✓	✓	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405880-005	17-MAR-2014 11:00	R01_17.03.14_WG	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405881</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : RP <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 14  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 18-MAR-2014 <b>Issue Date</b> : 26-MAR-2014  <b>No. of samples received</b> : 9 <b>No. of samples analysed</b> : 6
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics Newcastle - Asbestos



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
**Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).**  
**Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB09_0.2	VP_SB10_0.2	VP_SB10_0.5	D01_170314_RP	VP_SB01_0.2
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405881-001	ES1405881-003	ES1405881-004	ES1405881-005	ES1405881-007
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	12.6	----	27.9	31.7	9.3
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	No	No
Asbestos Type	1332-21-4	-	--	-	-	----	-	-
Sample weight (dry)	----	0.01	g	644	680	----	38.5	759
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	----	S.SPOONER	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.644	0.680	----	0.0385	0.759
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	<0.1	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	----	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	----	<0.04	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	----	<0.005	<0.001
Trace Asbestos Detected	----	5	Fibres	No	No	----	No	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	9	----	6	6	11
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	----	7	6	22
Copper	7440-50-8	5	mg/kg	5	----	6	8	302
Lead	7439-92-1	5	mg/kg	13	----	5	6	475
Nickel	7440-02-0	2	mg/kg	<2	----	3	3	<2
Zinc	7440-66-6	5	mg/kg	12	----	10	11	4820
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB09_0.2	VP_SB10_0.2	VP_SB10_0.5	D01_170314_RP	VP_SB01_0.2
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405881-001	ES1405881-003	ES1405881-004	ES1405881-005	ES1405881-007
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB09_0.2	VP_SB10_0.2	VP_SB10_0.5	D01_170314_RP	VP_SB01_0.2
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405881-001	ES1405881-003	ES1405881-004	ES1405881-005	ES1405881-007
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB09_0.2	VP_SB10_0.2	VP_SB10_0.5	D01_170314_RP	VP_SB01_0.2
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405881-001	ES1405881-003	ES1405881-004	ES1405881-005	ES1405881-007
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	<b>0.6</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<b>0.6</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<b>0.7</b>
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<b>1.9</b>
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VP_SB09_0.2	VP_SB10_0.2	VP_SB10_0.5	D01_170314_RP	VP_SB01_0.2
				17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00	17-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405881-001	ES1405881-003	ES1405881-004	ES1405881-005	ES1405881-007
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	74.4	----	90.4	72.1	91.9
Toluene-D8	2037-26-5	0.1	%	81.6	----	81.0	79.7	73.6
4-Bromofluorobenzene	460-00-4	0.1	%	78.3	----	64.3	62.6	75.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	104	----	107	97.9	103
2-Chlorophenol-D4	93951-73-6	0.1	%	102	----	103	90.5	102
2,4,6-Tribromophenol	118-79-6	0.1	%	62.2	----	53.7	44.0	76.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.9	----	88.7	95.7	92.2
Anthracene-d10	1719-06-8	0.1	%	102	----	111	98.6	101
4-Terphenyl-d14	1718-51-0	0.1	%	95.8	----	109	96.8	94.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	81.4	----	83.6	82.6	101
Toluene-D8	2037-26-5	0.1	%	86.2	----	108	100	78.4
4-Bromofluorobenzene	460-00-4	0.1	%	80.8	----	82.3	82.6	80.4



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

T01\_170314\_RP

Client sampling date / time

17-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1405881-009				
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	29.3	----	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	43.5	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.0435	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.03	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.005	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	6	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	6	----	----	----	----
Copper	7440-50-8	5	mg/kg	8	----	----	----	----
Lead	7439-92-1	5	mg/kg	6	----	----	----	----
Nickel	7440-02-0	2	mg/kg	3	----	----	----	----
Zinc	7440-66-6	5	mg/kg	12	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

T01\_170314\_RP

---

---

---

---

Client sampling date / time

17-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405881-009	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	---	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	---	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	---	---	---	---
Chloromethane	74-87-3	5	mg/kg	<5	---	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	---	---	---	---
Bromomethane	74-83-9	5	mg/kg	<5	---	---	---	---
Chloroethane	75-00-3	5	mg/kg	<5	---	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	---	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	---	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	---	---	---	---
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	---	---	---	---
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	---	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	---	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	---	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

T01\_170314\_RP

Client sampling date / time

17-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1405881-009				
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

T01\_170314\_RP

---

---

---

---

Client sampling date / time

17-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405881-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds - Continued

2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	---	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	10	mg/kg	<10	---	---	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	---	---	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	---	---	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

T01\_170314\_RP

---

---

---

---

Client sampling date / time

17-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405881-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued

C6 - C10 Fraction	C6_C10	10	mg/kg	<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	---	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	---	---	---	---
>C16 - C34 Fraction	---	100	mg/kg	<100	---	---	---	---
>C34 - C40 Fraction	---	100	mg/kg	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	---	50	mg/kg	<50	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	0.2	mg/kg	<0.2	---	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	---	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	---	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of BTEX	---	0.2	mg/kg	<0.2	---	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	---	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	---	---	---	---

### EP074S: VOC Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.2	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	82.6	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	69.1	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates

Phenol-d6	13127-88-3	0.1	%	105	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	98.5	---	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	48.5	---	---	---	---

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	97.5	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	102	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	100	---	---	---	---

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	87.1	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	71.6	---	---	---	---



## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Client sample ID - Client sampling date / time</i>	<i>Analytical Results</i>
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VP_SB09_0.2 - 17-MAR-2014 15:00	Mid orange - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VP_SB10_0.2 - 17-MAR-2014 15:00	Mid orange - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	D01_170314_RP - 17-MAR-2014 15:00	Fine mid grey clay soil with a trace of vegetation.
EA200: Description	VP_SB01_0.2 - 17-MAR-2014 15:00	Mid orange - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	T01_170314_RP - 17-MAR-2014 15:00	Fine mid grey clay soil with a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405881</b>	Page	: 1 of 16
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 18-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAR-2014
<b>Sampler</b>	: RP	<b>No. of samples received</b>	: 9
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 6
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics Newcastle - Asbestos



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3350009)</b>									
ES1405878-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.2	1.4	0% - 50%
ES1405882-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.1	13.0	7.2	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3354365)</b>									
ES1405880-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405882-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	11	29.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	17	8	67.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	6	18.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354366)</b>									
ES1405880-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405882-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3346715) - continued</b>									
ES1405737-005	Anonymous	EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1405737-005	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3346715) - continued</b>									
ES1405661-002	Anonymous	EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1405737-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3346715) - continued</b>									
ES1405737-005	Anonymous	EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3346715)</b>									
ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405737-005	Anonymous	EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3346918) - continued</b>									
ES1405880-001	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405881-009	T01_170314_RP	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918)</b>									
ES1405880-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405881-009	T01_170314_RP	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3346918) - continued</b>									
ES1405881-009	T01_170314_RP	EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346714)</b>									
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1405737-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346917)</b>									
ES1405880-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405881-009	T01_170314_RP	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346714)</b>									
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1405737-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346917)</b>									
ES1405880-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405881-009	T01_170314_RP	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3346714)</b>									
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						

Page : 9 of 16  
 Work Order : ES1405881  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3346714) - continued</b>										
ES1405661-002	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1405737-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.2	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.4	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.6	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	102	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	90.3	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	97.5	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	88.9	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.4	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3346715)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	73.6	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	77.3	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	74.5	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	74.3	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	78.0	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	73.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	68.9	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	74.5	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	73.7	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3346715)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	40.2	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	122	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	89.6	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	89.3	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3346715)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	73.0	54	126	
<b>EP074D: Fumigants (QCLot: 3346715)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	82.6	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	84.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	76.6	54	124	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3346715) - continued</b>									
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	65.5	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	79.8	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	50.2	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	71.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	80.3	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	65.9	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	88.3	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	76.0	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	78.5	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	72.2	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	69.0	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	79.5	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	84.9	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	82.0	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	83.8	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	79.6	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	85.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	84.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	81.0	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	86.0	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	89.6	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	89.3	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	65.5	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	83.1	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	77.7	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	78.3	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	93.6	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	65.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.8	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	65.8	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	84.4	70	128	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715) - continued</b>									
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	80.5	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	81.4	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	74.6	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	75.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	77.8	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	76.7	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	67.4	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	70.7	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3346715)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	80.1	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	82.0	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	72.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	77.6	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	97.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	112	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	112	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	112	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	106	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	107	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	89.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	103	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	96.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	44.2	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	82.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	115	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	115	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	91.3	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	91.7	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	79.8	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	104	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.4	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918) - continued</b>									
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	109	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.0	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	104	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	71.8	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	92.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.4	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	72.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.6	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	90.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	82.3	63	131	
<b>EP080: BTEXN (QCLot: 3346714)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	67.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	79.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	71.1	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	74.0	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	75.3	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	78.7	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>								
ES1405880-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	91.1	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.4	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	96.5	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	100	70	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365) - continued</b>							
ES1405880-001	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	89.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	87.6	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	88.3	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>							
ES1405880-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>							
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	87.5	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>							
ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.8	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>							
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>							
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.5	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>							
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>							
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>							
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	52	132
<b>EP080: BTEXN (QCLot: 3346714)</b>							
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.2	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.1	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3346714) - continued</b>							
ES1405661-002	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.3	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.2	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.7	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low High	RPDs (%) Value Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	97.5	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3346714)</b>										
ES1405661-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.2	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	81.2	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.3	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.2	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.7	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3346715)</b>										
ES1405661-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	87.5	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.3	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3346715)</b>										
ES1405661-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.8	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	74.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	83.0	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346917)</b>										
ES1405880-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	121	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	73.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	56.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918)</b>										



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3346918) - continued</b>										
ES1405880-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	103	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.1	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3346918)</b>										
ES1405880-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3354365)</b>										
ES1405880-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	91.1	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.4	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	96.5	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	100	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	89.9	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	87.6	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	88.3	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354366)</b>										
ES1405880-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405881</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 18-MAR-2014
C-O-C number	: ----	Issue Date	: 26-MAR-2014
Sampler	: RP	No. of samples received	: 9
Order number	: 0237747	No. of samples analysed	: 6
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	----	----	----	20-MAR-2014	31-MAR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.2, VP_SB01_0.2	17-MAR-2014	---	13-SEP-2014	----	24-MAR-2014	20-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	24-MAR-2014	13-SEP-2014	✓	25-MAR-2014	13-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	24-MAR-2014	14-APR-2014	✓	25-MAR-2014	14-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	24-MAR-2014	✓	21-MAR-2014	24-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	21-MAR-2014	31-MAR-2014	✓	22-MAR-2014	30-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	31-MAR-2014	✓	21-MAR-2014	31-MAR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VP_SB09_0.2, D01_170314_RP, T01_170314_RP	VP_SB10_0.5, VP_SB01_0.2	17-MAR-2014	19-MAR-2014	31-MAR-2014	✓	21-MAR-2014	31-MAR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1405881-009	T01_170314_RP	4-Bromofluorobenzene	460-00-4	71.6 %	71.6-130.0 %	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405881</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: RP</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 18-MAR-2014</b>	<b>Issue Date</b>	<b>: 19-MAR-2014 07:57</b>
<b>Client Requested Due Date</b>	<b>: 26-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 26-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.1°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 9</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 6</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample ID VP\_SB10\_1.0 received as VP\_SB10\_1.5 on jar, lab will follow the jar ID.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES1405881-006 : 17-MAR-2014 15:00 : VP\_SB10\_1.5 - VP\_SB10\_1.0

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos Quantitation by W/ANEPW Guidelines -	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1405881-001	17-MAR-2014 15:00	VP_SB09_0.2		✓	✓	✓	✓	✓
ES1405881-002	17-MAR-2014 15:00	VP_SB09_1.0	✓					
ES1405881-003	17-MAR-2014 15:00	VP_SB10_0.2			✓			
ES1405881-004	17-MAR-2014 15:00	VP_SB10_0.5				✓	✓	
ES1405881-005	17-MAR-2014 15:00	D01_170314_RP		✓	✓	✓	✓	✓
ES1405881-006	17-MAR-2014 15:00	VP_SB10_1.5 VP_SB10...	✓					
ES1405881-007	17-MAR-2014 15:00	VP_SB01_0.2			✓	✓	✓	
ES1405881-008	17-MAR-2014 15:00	VP_SB01_1.0	✓					
ES1405881-009	17-MAR-2014 15:00	T01_170314_RP		✓	✓	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

ALS Laboratory  
please tick ->

LABORATORY: 21 Burna Road Boroake SA 5095  
Ph: 08 8359 0500 E: info@als.com.au  
DUNEDIN: 22 Strand Street Dunedin Q.L.D. 4063  
Ph: 07 3243 7222 E: samp@als.com.au  
DUNEDIN: 46 Callernish Drive Glenedenq Q.L.D. 4820  
Ph: 07 7471 5800 E: gordon@als.com.au

BRISBANE: 79 Harbour Road Mackay Q.L.D. 4740  
Ph: 07 4544 3177 E: mackay@als.com.au  
MELBOURNE: 24 Wexford Road Springvale VIC 3171  
Ph: 03 8549 6800 E: samp@als.com.au  
MELBOURNE: 27 Sydney Road Mordialoop NSW 2560  
Ph: 02 6972 6735 E: mrd@als.com.au

WARRACOCK: 5 Stee Gun Road Warracock NSW 2504  
Ph: 02 4968 0433 E: samp@als.com.au  
DUNEDIN: 41/13 Ferny Ridge North Warracock NSW 2541  
Ph: 02 4423 2063 E: north@als.com.au  
DUNEDIN: 10 Howden Way Warracock NSW 2500  
Ph: 08 8209 7895 E: samp@als.com.au

DUNEDIN: 277-288 Woodpark Road Smithfield NSW 2164  
Ph: 02 8704 6555 E: samp@als.com.au  
DUNEDIN: 144/15 Deanna Court Baulk Hills NSW 4618  
Ph: 07 4786 0000 E: samp@als.com.au  
DUNEDIN: 59 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 9123 E: samp@als.com.au

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 023747

PROJECT MANAGER: JOHN EWING

SAMPLER: R. P. P. P.

COC emailed to ALS? (YES / NO)

Email Reports to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  
 Standard TAT (list due date):  
 Non Standard or urgent TAT (list due date):

ALS QUOTE NO.:

CONTACT PH: 0401 776 290

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Is body sealed? Yes No N/A

Is the container sealed? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

Is the sample temperature recorded? Yes No N/A

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	refer to	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VP-SB09-0-2	17.3.14	S	ACM Bag Standard jar		2	X	X	X	X	X	X							HOLD
2	VP-SB09-1-0		S	TOC jar		1													JAR on HOLD
3	VP-SB10-0-2		S	ACM Bag Standard jar		2	X	X	X	X	X	X							HOLD
4	VP-SB10-0-5		S	Standard jar		1	X	X	X	X	X	X							HOLD
5	DOI-170314-RP		S	Standard jar		1	X	X	X	X	X	X							HOLD
6	VP-SB10-1-0		S	TOC jar		1													HOLD
7	VP-SB01-0-2		S	ACM Bag Standard jar		2	X	X	X	X	X	X							HOLD
8	VP-SB01-1-0		S	TOC jar		1													HOLD
						<b>TOTAL</b>	5	5	5	5	5	5							

Environmental Division  
Sydney  
Work Order  
**ES1405881**

Telephone : +61-2-6784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved ORC; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfilled Unpreserved Plastic; V = VOA Vial Preserved; VB = VOA Vial Sodium Disphosphate Preserved; VS = VOA Vial Sulfuric Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formoldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Substrate Solids; B = Unpreserved Bag.



**CHAIN OF CUSTODY**

ALS Laboratory  
please tick →

DUQUAIDE 21 Burma Road Parramatta SA 5095  
Ph: 08 8395 0800 E: adelaide@alsglobal.com  
DEARBANK: 32 Strand Street, Stafford QLD 4051  
Ph: 07 3249 7222 E: samantha.kishner@alsglobal.com  
DEADSTONE 46 Callenourah Drive Clinton QLD 4680  
Ph: 07 7471 5600 E: gordon@alsglobal.com

DUACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com  
DUNEDIN 2-4 Wairua Road Dunedin VIC 3171  
Ph: 03 8593 9800 E: sarah@alsglobal.com  
DUJESSEE 27 Sydney Road Manly NSW 2100  
Ph: 02 6372 8735 E: manly@alsglobal.com

DUWAGASTLE 5 Rose Gum Road Werneck NSW 2264  
Ph: 02 4968 9433 E: sarah@alsglobal.com  
DUYARA 41/15 Quay Street North Sydney NSW 2141  
Ph: 02 9423 2503 E: north@alsglobal.com  
DUYARA 10 Hod Way Manly NSW 2100  
Ph: 02 9503 7653 E: manly@alsglobal.com

DUYONGEN 277-289 Woodcock Road Smithfield NSW 2141  
Ph: 02 9545 8551 E: smithfield@alsglobal.com  
DUYONGEN 14-15 Deane Court Bunde QLD 4818  
Ph: 07 4780 0500 E: bunde@alsglobal.com  
DUYONGEN 99 Kenny Street Wollongong NSW 2500  
Ph: 02 4226 3125 E: wollongong@alsglobal.com

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
PROJECT MANAGER: JOHN ENING  
CONTACT PH: 0401 776 290  
SAMPLER: *R. Paccal*  
SAMPLER MOBILE:  
COC emailed to ALS? ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.delaunoy@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.delaunoy@erm.com  
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
 Standard TAT (List due date)  
 Non Standard or Urgent TAT (List due date)  
COC SEQUENCE NUMBER (Circle)  
coc: 1 2 3 4 5 6 7  
or: 1 2 3 4 5 6 7  
RECEIVED BY: *Ravi*  
DATE/TIME: *1/8/3 19:00*

REINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:  
REINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)  
Where Metals are required, specify Total (unfiltered bottles required) or Dissolved (acid filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	(refer to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VP-SB09-0-2	17-3-14	S	ACM Bag Standard jar		2	X	X	X	X	X								HOLD
2	VP-SB09-1-0		S	TOC jar		1													JAR ON HOLD
3	VP-SB10-0-2		S	ACM Bag Standard jar		2	X	X	X	X	X								HOLD
4	VP-SB10-0-5		S	Standard jar		1	X	X	X	X	X								
5	DOI-170314-RP		S	Standard jar		1	X	X	X	X	X								
6	VP-SB10-1-0		S	TOC jar		1													HOLD
7	VP-SB01-0-2		S	ACM Bag Standard jar		2	X	X	X	X	X								HOLD
8	VP-SB01-1-0		S	TOC jar		1													HOLD
						TOTAL	5	5	5	5	5								

Environmental Division  
Sydney  
Work Order  
**ES1405881**

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Allright Unpreserved Plastic  
V = VOA Via HCl Preserved; VB = VOA Via Sulfuric Acid Preserved; VS = VOA Via Sulfuric Acid Preserved; AV = Allright Unpreserved Via SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Soluble Solids; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405961</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINTS <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : RP <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 19-MAR-2014 <b>Issue Date</b> : 27-MAR-2014  <b>No. of samples received</b> : 2 <b>No. of samples analysed</b> : 2
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VE_SB01_2.7	VG_MW03_1.0	---	---	---
				18-MAR-2014 15:00	18-MAR-2014 15:00	---	---	---
				ES1405961-001	ES1405961-002	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	16.4	17.8	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	---	---	---
Barium	7440-39-3	10	mg/kg	10	<10	---	---	---
Beryllium	7440-41-7	1	mg/kg	<1	<1	---	---	---
Boron	7440-42-8	50	mg/kg	<50	<50	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	8	19	---	---	---
Cobalt	7440-48-4	2	mg/kg	<2	<2	---	---	---
Copper	7440-50-8	5	mg/kg	8	<5	---	---	---
Lead	7439-92-1	5	mg/kg	6	<5	---	---	---
Manganese	7439-96-5	5	mg/kg	16	<5	---	---	---
Molybdenum	7439-98-7	2	mg/kg	<2	<2	---	---	---
Nickel	7440-02-0	2	mg/kg	2	<2	---	---	---
Selenium	7782-49-2	5	mg/kg	<5	<5	---	---	---
Vanadium	7440-62-2	5	mg/kg	22	48	---	---	---
Zinc	7440-66-6	5	mg/kg	19	<5	---	---	---
Thallium	7440-28-0	5	mg/kg	<5	<5	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	---	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	---	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	---	---	---
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	---	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	---	---	---
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	---	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	---	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	---	---	---
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VE_SB01_2.7	VG_MW03_1.0	---	---	---
				18-MAR-2014 15:00	18-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405961-001	ES1405961-002	---	---	---
<b>EP074B: Oxygenated Compounds - Continued</b>								
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	---	---	---
Chloromethane	74-87-3	5	mg/kg	<5	<5	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	---	---	---
Bromomethane	74-83-9	5	mg/kg	<5	<5	---	---	---
Chloroethane	75-00-3	5	mg/kg	<5	<5	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	---	---	---
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	---	---	---
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	---	---	---
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	---	---	---
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	---	---	---
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	---	---	---





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VE_SB01_2.7	VG_MW03_1.0	---	---	---
				18-MAR-2014 15:00	18-MAR-2014 15:00	---	---	---
				ES1405961-001	ES1405961-002	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	---	---	---
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	---	---	---
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	---	---	---
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	---	---	---
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	---	---	---
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	---	---	---
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	---	---	---
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	---	---	---
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VE_SB01_2.7	VG_MW03_1.0	---	---	---
				18-MAR-2014 15:00	18-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405961-001	ES1405961-002	---	---	---
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	---	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	---	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	---	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VE_SB01_2.7	VG_MW03_1.0	---	---	---
				18-MAR-2014 15:00	18-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405961-001	ES1405961-002	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	---	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	---	---	---
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	97.7	---	---	---
Toluene-D8	2037-26-5	0.1	%	110	102	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	100	93.0	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	92.4	100	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	104	102	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	110	115	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	110	99.4	---	---	---
Anthracene-d10	1719-06-8	0.1	%	102	103	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	106	106	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	103	94.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	105	97.7	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	107	99.8	---	---	---



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405961</b>	Page	: 1 of 16
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINTS	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 19-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 27-MAR-2014
<b>Sampler</b>	: RP	<b>No. of samples received</b>	: 2
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 2
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3355528)</b>									
ES1405879-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.3	17.4	5.2	0% - 50%
ES1405963-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	21.7	4.2	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3358751)</b>									
ES1405961-001	VE_SB01_2.7	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	<5	45.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	16	11	31.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	21	6.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	19	7	92.2	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406002-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	11	14.1	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	18	18	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	10	22.4	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3358752)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3358752) - continued</b>									
ES1405961-001	VE_SB01_2.7	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406002-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3349478)</b>									
ES1405961-001	VE_SB01_2.7	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
ES1406001-009	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3349478)</b>									
<b>EP074C: Sulfonated Compounds (QC Lot: 3349478)</b>									
ES1405961-001	VE_SB01_2.7	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3349478)</b>									
ES1405961-001	VE_SB01_2.7	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3349478) - continued</b>									
ES1406001-009	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3349478)</b>									
ES1405961-001	VE_SB01_2.7	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1406001-009	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3349478) - continued</b>									
ES1406001-009	Anonymous	EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3349478)</b>									
ES1405961-001	VE_SB01_2.7	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074G: Trihalomethanes (QC Lot: 3349478)</b>											
ES1405961-001	VE_SB01_2.7	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406001-009	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074H: Naphthalene (QC Lot: 3349478)</b>											
ES1405961-001	VE_SB01_2.7	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
ES1406001-009	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3351887)</b>											
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1405962-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3351887)</b>											
ES1405930-007	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3351887) - continued</b>									
ES1405930-007	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405962-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3349477)</b>									
ES1405961-001	VE_SB01_2.7	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406001-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3351886)</b>									
ES1405930-007	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3351886) - continued</b>										
ES1405930-007	Anonymous	EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405962-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3349477)</b>										
ES1405961-001	VE_SB01_2.7	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406001-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405962-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3349477)</b>										
ES1405961-001	VE_SB01_2.7	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406001-009	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	105	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	108	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	106	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	102	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	105	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	107	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.3	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	110	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	72.0	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.1	66	112	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3349478)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	99.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.7	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	102	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	98.2	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3349478)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	98.4	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	96.0	58	136	
		5	mg/kg	<5	----	----	----	----	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3349478) - continued</b>									
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	98.9	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	94.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3349478)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	93.8	54	126	
<b>EP074D: Fumigants (QCLot: 3349478)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	103	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	102	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	104	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	101	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	99.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	101	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	96.4	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	97.2	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	99.1	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	96.4	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	94.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	98.7	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.9	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	101	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	101	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	98.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	95.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	97.7	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	112	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	96.7	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67	143	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478) - continued</b>									
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	101	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	102	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	100	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3349478)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	100	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.3	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	100	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	99.1	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.5	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	100	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.1	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3349478)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	98.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	97.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	107	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	102	60	126	
<b>EP074H: Naphthalene (QCLot: 3349478)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	95.8	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.9	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	91.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	86.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.5	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	84.8	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	68	112	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.6	76.4	114	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.0	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	93.4	68.9	112	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887) - continued</b>									
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.1	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	96.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	100	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	99.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	100	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	89.5	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.8	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	84.0	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349477)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	110	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	110	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	91.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349477)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	113	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	117	63	131	
<b>EP080: BTEXN (QCLot: 3349477)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	102	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	60	120	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3349477) - continued</b>								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.8	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>							
ES1405961-001	VE_SB01_2.7	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	96.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>							
ES1405961-001	VE_SB01_2.7	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478)</b>							
ES1405961-001	VE_SB01_2.7	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.0	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.7	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3349478)</b>							
ES1405961-001	VE_SB01_2.7	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>							
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>							
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349477)</b>							
ES1405961-001	VE_SB01_2.7	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.0	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886) - continued</b>								
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349477)</b>								
ES1405961-001	VE_SB01_2.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>								
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.8	52	132	
<b>EP080: BTEXN (QCLot: 3349477)</b>								
ES1405961-001	VE_SB01_2.7	EP080: Benzene	71-43-2	2.5 mg/kg	86.2	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.2	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.1	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	75.0	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349477)</b>											
ES1405961-001	VE_SB01_2.7	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.0	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349477)</b>											
ES1405961-001	VE_SB01_2.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3349477)</b>											
ES1405961-001	VE_SB01_2.7	EP080: Benzene	71-43-2	2.5 mg/kg	86.2	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	89.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.0	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.5	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.1	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	75.0	----	70	130	----	----			



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478)</b>										
ES1405961-001	VE_SB01_2.7	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.0	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.7	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3349478)</b>										
ES1405961-001	VE_SB01_2.7	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.8	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>										
ES1405961-001	VE_SB01_2.7	EG005T: Arsenic	7440-38-2	50 mg/kg	111	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	106	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	105	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	96.6	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>										
ES1405961-001	VE_SB01_2.7	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405961</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINTS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: RP	No. of samples received	: 2
Order number	: 0237747	No. of samples analysed	: 2
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	----	----	----	24-MAR-2014	01-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	26-MAR-2014	14-SEP-2014	✓	26-MAR-2014	14-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	26-MAR-2014	15-APR-2014	✓	27-MAR-2014	15-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓
<b>EP074D: Fumigants</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	23-MAR-2014	01-APR-2014	✓	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_SB01_2.7, VG_MW03_1.0	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	23-MAR-2014	01-APR-2014	✓	



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	15.4	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### ***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes***

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### ***Regular Sample Surrogates***

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405961**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINTS</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : RP</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 19-MAR-2014</b></p> <p><b>Client Requested Due Date : 27-MAR-2014</b></p>	<p><b>Issue Date : 20-MAR-2014 08:39</b></p> <p><b>Scheduled Reporting Date : <b>27-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.8°C - Ice present</b></p> <p><b>No. of samples received : 2</b></p> <p><b>No. of samples analysed : 2</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/TEXNIPAH + Phenols
ES1405961-001	18-MAR-2014 15:00	VE_SB01_2.7	✓	✓	✓	✓
ES1405961-002	18-MAR-2014 15:00	VG_MW03_1.0	✓	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOANNE ATKIN

- *AU Certificate of Analysis - NATA ( COA )	Email	joanne.atkin@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	joanne.atkin@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	joanne.atkin@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	joanne.atkin@erm.com
- Chain of Custody (CoC) ( COC )	Email	joanne.atkin@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	joanne.atkin@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	joanne.atkin@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	joanne.atkin@erm.com
- EDI Format - XTab ( XTab )	Email	joanne.atkin@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405962</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : DB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 19-MAR-2014 <b>Issue Date</b> : 27-MAR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 5
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_1.8	VB_MW02_3.0	VS_MW05_3.5	D01_180314_DB	VS_MW04_6.0
				18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405962-001	ES1405962-002	ES1405962-003	ES1405962-004	ES1405962-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	7.5	18.5	20.0	20.9	31.8
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	4	9	10	12
Copper	7440-50-8	5	mg/kg	<5	5	<5	5	7
Lead	7439-92-1	5	mg/kg	<5	5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	4
Zinc	7440-66-6	5	mg/kg	6	<5	<5	<5	6
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_1.8	VB_MW02_3.0	VS_MW05_3.5	D01_180314_DB	VS_MW04_6.0
				18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405962-001	ES1405962-002	ES1405962-003	ES1405962-004	ES1405962-005
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_1.8	VB_MW02_3.0	VS_MW05_3.5	D01_180314_DB	VS_MW04_6.0
				18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405962-001	ES1405962-002	ES1405962-003	ES1405962-004	ES1405962-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	<5	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_1.8	VB_MW02_3.0	VS_MW05_3.5	D01_180314_DB	VS_MW04_6.0
				18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405962-001	ES1405962-002	ES1405962-003	ES1405962-004	ES1405962-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_MW07_1.8	VB_MW02_3.0	VS_MW05_3.5	D01_180314_DB	VS_MW04_6.0
				18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405962-001	ES1405962-002	ES1405962-003	ES1405962-004	ES1405962-005
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	72.9	87.6	83.7	74.0
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	97.0	94.2	97.6	96.4
Toluene-D8	2037-26-5	0.1	%	110	101	97.1	100	101
4-Bromofluorobenzene	460-00-4	0.1	%	99.7	92.3	88.7	90.9	91.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.0	90.6	90.1	87.0	82.6
2-Chlorophenol-D4	93951-73-6	0.1	%	91.7	97.8	95.6	91.7	90.2
2,4,6-Tribromophenol	118-79-6	0.1	%	84.2	110	106	101	90.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.5	100	97.9	96.5	93.5
Anthracene-d10	1719-06-8	0.1	%	94.0	102	99.0	95.7	93.1
4-Terphenyl-d14	1718-51-0	0.1	%	96.9	109	103	99.8	94.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	93.9	91.2	94.5	93.4
Toluene-D8	2037-26-5	0.1	%	105	96.4	93.0	96.0	96.8
4-Bromofluorobenzene	460-00-4	0.1	%	107	99.0	95.3	97.3	99.8



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405962</b>	Page	: 1 of 16
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 19-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 27-MAR-2014
<b>Sampler</b>	: DB	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 5
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :

- Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
- CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
- LOR = Limit of reporting
- RPD = Relative Percentage Difference
- # = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3355528)</b>									
ES1405879-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.3	17.4	5.2	0% - 50%
ES1405963-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	21.7	4.2	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3358751)</b>									
ES1405961-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	<5	45.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	19	7	92.2	No Limit
ES1406002-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	11	14.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	10	22.4	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3358752)</b>									
ES1405961-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406002-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3349462)</b>									
ES1405879-012	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1405962-005	VS_MW04_6.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3349478)</b>									
ES1405961-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3349478) - continued</b>									
ES1406001-009	Anonymous	EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3349478)</b>									
ES1405961-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406001-009	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3349478)</b>									
ES1405961-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3349478)</b>									
ES1405961-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406001-009	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3349478)</b>									
ES1405961-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3349478) - continued</b>									
ES1405961-001	Anonymous	EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
ES1406001-009	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3349478) - continued</b>											
ES1406001-009	Anonymous	EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3349478)</b>											
ES1405961-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406001-009	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405961-001	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		ES1406001-009	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: Dibromochloromethane	124-48-1			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP074: Bromoform	75-25-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3349478)</b>											
<b>EP074H: Naphthalene (QC Lot: 3349478)</b>											
ES1405961-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
ES1406001-009	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3351887)</b>											
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3351887) - continued</b>									
ES1405930-007	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405962-005	VS_MW04_6.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3351887)</b>									
ES1405930-007	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3351887) - continued</b>									
ES1405930-007	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1405962-005	VS_MW04_6.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3349477)</b>									
ES1405961-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406001-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3351886)</b>									
ES1405930-007	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405962-005	VS_MW04_6.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3349477)</b>									
ES1405961-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406001-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3351886)</b>									
ES1405930-007	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405962-005	VS_MW04_6.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3351886) - continued</b>									
ES1405962-005	VS_MW04_6.0	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3349477)</b>									
ES1405961-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406001-009	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	106	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.1	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3349462)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	74.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3349478)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	99.4	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	98.7	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	102	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	98.2	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3349478)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	98.4	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	96.0	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	98.9	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	94.7	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3349478)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	93.8	54	126	
<b>EP074D: Fumigants (QCLot: 3349478)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3349478) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	103	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	102	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	104	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	101	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	99.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	101	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	96.4	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	97.2	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	99.1	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	96.4	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	94.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	98.7	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.9	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	101	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	101	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	98.9	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	95.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	97.7	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	112	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	96.7	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	104	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	101	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	100	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	102	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.5	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	100	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3349478)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	100	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.3	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	100	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	99.1	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	97.5	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	100	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.1	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3349478)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	98.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	97.6	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	107	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	102	60	126	
<b>EP074H: Naphthalene (QCLot: 3349478)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	95.8	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.9	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	91.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	86.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	84.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	93.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.1	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	96.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	100	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	99.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	





Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	100	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	89.5	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.8	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	84.0	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349477)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	110	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	110	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	91.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349477)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	113	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	117	63	131	
<b>EP080: BTEXN (QCLot: 3349477)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.4	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	102	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.8	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Recovery Limits (%)
				Concentration	MS	Low High



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>							
ES1405961-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	96.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>							
ES1405961-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3349462)</b>							
ES1405879-012	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	90.8	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3349478)</b>							
ES1405961-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.0	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.7	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3349478)</b>							
ES1405961-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>							
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>							
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349477)</b>							
ES1405961-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.0	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>							
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349477)</b>							
ES1405961-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.6	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>							
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	53	131





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886) - continued</b>										
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.8	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358751)</b>										
ES1405961-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	106	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	105	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	96.6	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358752)</b>										
ES1405961-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405962</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: DB	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 5
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	----	----	----	24-MAR-2014	01-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	26-MAR-2014	14-SEP-2014	✓	26-MAR-2014	14-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	26-MAR-2014	15-APR-2014	✓	27-MAR-2014	15-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_MW02_3.0, D01_180314_DB,	VS_MW05_3.5, VS_MW04_6.0	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	25-MAR-2014	30-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	25-MAR-2014	✓	23-MAR-2014	25-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	23-MAR-2014	01-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_MW07_1.8, VS_MW05_3.5, VS_MW04_6.0	VB_MW02_3.0, D01_180314_DB,	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	23-MAR-2014	01-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### ***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes***

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### ***Regular Sample Surrogates***

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405962</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: DB</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 19-MAR-2014</b>	<b>Issue Date</b>	<b>: 20-MAR-2014 09:27</b>
<b>Client Requested Due Date</b>	<b>: 27-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 27-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 2.8' C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 5</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 5</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP066 (solids)	Polychlorinated Biphenyls by GC/MS	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - S-27	TRH/BTEX/NPAH/Phenols/8Metals
ES1405962-001	18-MAR-2014 15:00	VK_MW07_1.8		✓	✓	✓		
ES1405962-002	18-MAR-2014 15:00	VB_MW02_3.0	✓	✓	✓			
ES1405962-003	18-MAR-2014 15:00	VS_MW05_3.5	✓	✓	✓			
ES1405962-004	18-MAR-2014 15:00	D01_180314_DB	✓	✓	✓			
ES1405962-005	18-MAR-2014 15:00	VS_MW04_6.0	✓	✓	✓			

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405963</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : GAVIN POWELL <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 22  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 19-MAR-2014 <b>Issue Date</b> : 27-MAR-2014  <b>No. of samples received</b> : 14 <b>No. of samples analysed</b> : 14
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Organics
		Sydney Organics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
**Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).**  
**Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW04_1.5	VU_MW09_0.2	VU_MW08_0.5	VU_MW10_1.0	D01_180314_GP
				18-MAR-2014 08:50	18-MAR-2014 09:10	18-MAR-2014 09:45	18-MAR-2014 10:50	18-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405963-001	ES1405963-002	ES1405963-003	ES1405963-004	ES1405963-005
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.8	9.4	20.4	20.8	21.3
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	6	7	29	15
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	11	7
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW04_1.5	VU_MW09_0.2	VU_MW08_0.5	VU_MW10_1.0	D01_180314_GP
				18-MAR-2014 08:50	18-MAR-2014 09:10	18-MAR-2014 09:45	18-MAR-2014 10:50	18-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405963-001	ES1405963-002	ES1405963-003	ES1405963-004	ES1405963-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW04_1.5	VU_MW09_0.2	VU_MW08_0.5	VU_MW10_1.0	D01_180314_GP
				18-MAR-2014 08:50	18-MAR-2014 09:10	18-MAR-2014 09:45	18-MAR-2014 10:50	18-MAR-2014 10:50
Compound	CAS Number	LOR	Unit	ES1405963-001	ES1405963-002	ES1405963-003	ES1405963-004	ES1405963-005
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	84.8	91.4	86.5	86.2	88.1
2-Chlorophenol-D4	93951-73-6	0.1	%	92.1	96.6	93.9	92.8	96.8
2,4,6-Tribromophenol	118-79-6	0.1	%	101	101	103	98.3	99.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	97.0	99.9	98.7	98.3	112
Anthracene-d10	1719-06-8	0.1	%	96.3	101	99.3	98.8	99.5
4-Terphenyl-d14	1718-51-0	0.1	%	98.8	103	103	101	102
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.2	99.9	90.9	91.6	92.9
Toluene-D8	2037-26-5	0.1	%	92.8	93.4	88.4	86.0	85.6
4-Bromofluorobenzene	460-00-4	0.1	%	98.3	102	93.2	92.4	91.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	16.8	----	13.7	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	No	No
Asbestos Type	1332-21-4	-	--	----	-	----	-	-
Sample weight (dry)	----	0.01	g	----	926	----	843	962
APPROVED IDENTIFIER:	----	-	--	----	C.OWLER	----	C.OWLER	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.926	----	0.843	0.962
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	<0.1	<0.1
Fibrous Asbestos	----	0.002	g	----	<0.002	----	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	<0.001	<0.001
Trace Asbestos Detected	----	5	Fibres	----	No	----	No	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	8	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	24	----	6	----	----
Copper	7440-50-8	5	mg/kg	<5	----	13	----	----
Lead	7439-92-1	5	mg/kg	6	----	6	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	5	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	22	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	<0.5	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	<5	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	<5	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	<5	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	<5	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	<0.5	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	<0.5	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	<0.5	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	0.0006	----	----
PFOA	335-67-1	0.0005	mg/kg	----	----	<0.0005	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	68.3	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	----	112	----	----
Toluene-D8	2037-26-5	0.1	%	128	----	129	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	102	----	101	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.9	----	85.3	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_1.0	VK_SB02_0.1	VB_SB01_0.5	VB_SB01_0.35	VC_MW01_0.25
				18-MAR-2014 12:35	18-MAR-2014 12:20	18-MAR-2014 14:25	18-MAR-2014 14:20	18-MAR-2014 16:35
Compound	CAS Number	LOR	Unit	ES1405963-006	ES1405963-008	ES1405963-009	ES1405963-010	ES1405963-011
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	87.0	----	93.1	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	97.4	----	98.7	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	109	----	95.2	----	----
Anthracene-d10	1719-06-8	0.1	%	97.9	----	95.3	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	102	----	99.4	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	----	109	----	----
Toluene-D8	2037-26-5	0.1	%	102	----	103	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	109	----	109	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VC\_MW01\_0.5

---

---

---

---

Client sampling date / time

18-MAR-2014 16:40

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405963-012	---	---	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	11.8	---	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	5	---	---	---	---
Copper	7440-50-8	5	mg/kg	12	---	---	---	---
Lead	7439-92-1	5	mg/kg	<5	---	---	---	---
Nickel	7440-02-0	2	mg/kg	11	---	---	---	---
Zinc	7440-66-6	5	mg/kg	37	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	---	---	---	---
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	---	---	---	---
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	---	---	---	---
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	---	---	---	---
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	---	---	---	---
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	---	---	---	---
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	---	---	---	---
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	---	---	---	---
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VC\_MW01\_0.5

---

---

---

---

Client sampling date / time

18-MAR-2014 16:40

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1405963-012	---	---	---	---
<b>EP074D: Fumigants - Continued</b>								
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	---	---	---	---
Chloromethane	74-87-3	5	mg/kg	<5	---	---	---	---
Vinyl chloride	75-01-4	5	mg/kg	<5	---	---	---	---
Bromomethane	74-83-9	5	mg/kg	<5	---	---	---	---
Chloroethane	75-00-3	5	mg/kg	<5	---	---	---	---
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	---	---	---	---
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	---	---	---	---
Iodomethane	74-88-4	0.5	mg/kg	<0.5	---	---	---	---
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	---	---	---	---
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	---	---	---	---
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	---	---	---	---
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	---	---	---	---
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	---	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	---	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	---	---	---	---
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	---	---	---	---
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	---	---	---	---
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	---	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	---	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	---	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	---	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	---	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	---	---	---	---
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	---	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	---	---	---	---
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	---	---	---	---





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VC\_MW01\_0.5

Client sampling date / time

18-MAR-2014 16:40

Compound	CAS Number	LOR	Unit	ES1405963-012	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	---	---	---	---
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	---	---	---	---
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	---	---	---	---
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	---	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	---	---	---	---
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	---	---	---	---
Bromoform	75-25-2	0.5	mg/kg	<0.5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VC\_MW01\_0.5

Client sampling date / time

18-MAR-2014 16:40

Compound	CAS Number	LOR	Unit	ES1405963-012				
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VC\_MW01\_0.5

Client sampling date / time

18-MAR-2014 16:40

Compound	CAS Number	LOR	Unit	ES1405963-012				
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	----	----	----	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	83.9	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	131	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	92.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	102	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	107	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	105	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	104	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	108	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	113	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	104	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	111	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_180314_GP	TB 3	TS 4	---	---
				18-MAR-2014 13:45	18-MAR-2014 15:00	18-MAR-2014 15:00	---	---
				ES1405963-007	ES1405963-014	ES1405963-015	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_180314_GP	TB 3	TS 4	---	---
				18-MAR-2014 13:45	18-MAR-2014 15:00	18-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405963-007	ES1405963-014	ES1405963-015	---	---
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_180314_GP	TB 3	TS 4	---	---
				18-MAR-2014 13:45	18-MAR-2014 15:00	18-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1405963-007	ES1405963-014	ES1405963-015	---	---
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	R01_180314_GP	TB 3	TS 4	---	---
Client sampling date / time	18-MAR-2014 13:45	18-MAR-2014 15:00	18-MAR-2014 15:00	---	---
	ES1405963-007	ES1405963-014	ES1405963-015	---	---

Compound	CAS Number	LOR	Unit	ES1405963-007	ES1405963-014	ES1405963-015	---	---
----------	------------	-----	------	---------------	---------------	---------------	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	15	----	----
Toluene	108-88-3	2	µg/L	<2	<2	15	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	15	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	15	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	16	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	31	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	76	----	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_180314_GP	TB 3	TS 4	----	----
				18-MAR-2014 13:45	18-MAR-2014 15:00	18-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1405963-007	ES1405963-014	ES1405963-015	----	----
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	5	µg/L	<5	<5	16	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	125	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	127	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	27.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	54.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	61.4	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	78.3	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	69.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	62.1	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	121	121	119	----	----
Toluene-D8	2037-26-5	0.1	%	101	105	115	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	110	112	122	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VK_SB02_0.1 - 18-MAR-2014 12:20	Mid brown sandy soil with some grey rocks plus a trace of vegetation
EA200: Description	VB_SB01_0.35 - 18-MAR-2014 14:20	Pale orange-red clay soil with some small red rocks plus a trace of vegetation
EA200: Description	VC_MW01_0.25 - 18-MAR-2014 16:35	Pale orange-red clay soil with some small red rocks plus a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1405963</b>	Page	: 1 of 26
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 19-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 27-MAR-2014
<b>Sampler</b>	: GAVIN POWELL	<b>No. of samples received</b>	: 14
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 14
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Organics
		Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3355528)</b>									
ES1405879-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.3	17.4	5.2	0% - 50%
ES1405963-004	VU_MW10_1.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.8	21.7	4.2	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359158)</b>									
ES1405963-001	VU_MW04_1.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	18	43.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406133-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	24	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	14	14	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	9	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	40	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	69	71	2.8	0% - 50%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3359159)</b>									
ES1405963-001	VU_MW04_1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406133-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3354881)</b>									
ES1406076-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	1.3	1.6	20.0	0% - 50%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3354874) - continued</b>									
ES1405963-006	VK_SB02_1.0	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3354874)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3354874) - continued</b>									
ES1405963-006	VK_SB02_1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3354874)</b>									
ES1405963-006	VK_SB02_1.0	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3351887)</b>									
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405962-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3351887) - continued</b>									
ES1405962-005	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3351887)</b>									
ES1405930-007	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1405962-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1405999-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1405962-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354873)</b>										
ES1405963-006	VK_SB02_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406127-010	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1405999-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1405962-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354873)</b>										
ES1405963-006	VK_SB02_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406127-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1405999-005	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP080: BTEXN (QC Lot: 3351740) - continued</b>											
ES1405999-005	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>EP080: BTEXN (QC Lot: 3354873)</b>											
ES1405963-006	VK_SB02_1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
			95-47-6	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406127-010	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
ES1406127-010	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		<b>EP231: Perfluorinated Compounds (QC Lot: 3351137)</b>									
		ES1405956-016	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0205	0.0192	7.0	0% - 20%
				EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
				EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
<b>Sub-Matrix: WATER</b>											
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3353720)</b>											
ES1405660-009	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit		
ES1405949-009	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.005	20.2	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3351283)</b>											
ES1405848-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
ES1405963-007	R01_180314_GP	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1405944-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
ES1405944-001	Anonymous	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
		EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
ES1405944-001	Anonymous	EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3350270) - continued</b>									
ES1405963-007	R01_180314_GP	EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1405963-007	R01_180314_GP	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3350270) - continued</b>									
ES1405963-007	R01_180314_GP	EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit

Page : 12 of 26  
 Work Order : ES1405963  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074G: Trihalomethanes (QC Lot: 3350270) - continued</b>									
ES1405944-001	Anonymous	EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	19	118	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	32	146	No Limit
<b>EP074H: Naphthalene (QC Lot: 3350270)</b>									
ES1405944-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1405963-007	R01_180314_GP	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350271)</b>									
ES1405944-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350271)</b>									
ES1405944-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3350271)</b>									
ES1405944-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359158)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	121	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	117	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359159)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.6	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3354881)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	81.8	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3354874)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	91.1	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	89.1	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	81.2	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	84.9	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	84.7	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	83.7	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	85.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	81.0	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3354874)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	48.3	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	127	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	103	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	103	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3354874)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	60.7	54	126	
<b>EP074D: Fumigants (QCLot: 3354874)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	83.2	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3354874) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	92.5	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	87.1	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	82.6	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	89.9	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354874)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	55.5	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	77.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	85.1	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	82.7	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	83.8	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	89.6	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	84.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	76.4	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	88.0	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	89.8	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	88.9	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	85.6	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.8	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	89.7	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	99.9	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	104	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.3	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	85.0	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	90.5	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	96.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	94.1	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	109	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	74.1	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.4	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.4	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354874)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	93.6	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	88.2	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	85.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	86.1	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	87.8	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	88.0	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	78.4	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	87.3	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3354874)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	89.9	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.1	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	89.9	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP074H: Naphthalene (QCLot: 3354874)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	93.9	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	86.9	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	91.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	86.0	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	84.8	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.3	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	80.0	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	93.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.1	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	96.9	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	100	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	99.9	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	97.8	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	100	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	94.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	85.8	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	89.5	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	86.8	71	113	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	84.0	71.7	113	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351740)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	110	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	91.8	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354873)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	105	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351740)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	81.5	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	95.0	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	117	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354873)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	106	68.4	128	
<b>EP080: BTEXN (QCLot: 3351740)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	83.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	84.4	62	138	
<b>EP080: BTEXN (QCLot: 3354873)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.2	58	118	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3354873) - continued</b>									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	96.2	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.1	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.4	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3351137)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	82.4	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	73.2	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	60.6	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351283)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	107	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3350270)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.9	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.8	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	87.5	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	90.0	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	91.3	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	91.2	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	89.6	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	88.5	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	84.0	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3350270)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	# 60.5	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	110	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	107	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	108	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3350270)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	82.4	72.8	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP074D: Fumigants (QCLot: 3350270)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.9	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.4	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	91.2	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	90.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	103	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3350270)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	103	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	104	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	115	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	101	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	102	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	108	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	100	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	93.6	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	98.1	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.2	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	98.9	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.5	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	97.3	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.3	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	109	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	98.3	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	101	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	112	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	109	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.0	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.3	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.3	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	113	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	91.8	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	85.4	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3350270)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	101	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	94.2	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	92.7	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	92.1	71	121	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3350270) - continued</b>								
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.3	74	120
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	90.2	72	120
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	92.0	77	117
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	78.8	60	126
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	90.4	67	125
<b>EP074G: Trihalomethanes (QCLot: 3350270)</b>								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	100	76	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	103	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	105	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	108	73.5	126
<b>EP074H: Naphthalene (QCLot: 3350270)</b>								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	95.1	61	125
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3349656)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.6	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	# 61.0	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	61.3	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	59.6	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	71.2	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	72.5	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	68.3	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.7	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	64.3	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	65.4	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	67.0	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	55.5	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3349656)</b>								





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3349656) - continued</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.1	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	65.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	71.6	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	76.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	86.5	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	85.7	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.7	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	80.2	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	83.9	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	81.3	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	80.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	79.8	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	80.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	78.9	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3349655)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	99.6	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.6	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350271)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.9	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349655)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3349655) - continued</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.6	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.4	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350271)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.6	75	127	
<b>EP080: BTEXN (QCLot: 3350271)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	92.3	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	94.4	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.9	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	95.1	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.1	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	88.6	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359158)</b>							
ES1405963-001	VU_MW04_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	113	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	120	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	109	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	112	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359159)</b>							
ES1405963-001	VU_MW04_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	103	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3354881)</b>							
ES1406076-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	# 63.9	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354874)</b>							
ES1405963-006	VK_SB02_1.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	97.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.5	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354874)</b>								
ES1405963-006	VK_SB02_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.2	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>								
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>								
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351740)</b>								
ES1405963-001	VU_MW04_1.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>								
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354873)</b>								
ES1405963-006	VK_SB02_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	98.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351740)</b>								
ES1405963-001	VU_MW04_1.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	79.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>								
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.8	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354873)</b>								
ES1405963-006	VK_SB02_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.2	70	130	
<b>EP080: BTEXN (QCLot: 3351740)</b>								
ES1405963-001	VU_MW04_1.5	EP080: Benzene	71-43-2	2.5 mg/kg	80.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	82.9	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	78.4	70	130			
<b>EP080: BTEXN (QCLot: 3354873)</b>								
ES1405963-006	VK_SB02_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	89.8	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3354873) - continued</b>								
ES1405963-006	VK_SB02_1.0	EP080: Toluene	108-88-3	2.5 mg/kg	90.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.6	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.5	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.5	70	130	
<b>EP231: Perfluorinated Compounds (QCLot: 3351137)</b>								
ES1405956-016	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>							
ES1405661-008	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.2	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.6	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	99.0	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.6	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351283)</b>							
ES1405949-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	86.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3350270)</b>							
ES1405944-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.2	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	95.4	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3350270)</b>							
ES1405944-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350271)</b>							
ES1405944-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	107	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350271)</b>							
ES1405944-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	108	70	130
<b>EP080: BTEXN (QCLot: 3350271)</b>							
ES1405944-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	91.5	70	130
		EP080: Toluene	108-88-3	25 µg/L	91.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3350271) - continued</b>							
ES1405944-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	100	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	100	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	105	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.6	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3351137)</b>										
ES1405956-016	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	79.1	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	76.1	----	56	138	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.0	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	79.0	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3351740)</b>										
ES1405963-001	VU_MW04_1.5	EP080: Benzene	71-43-2	2.5 mg/kg	80.0	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	82.9	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	77.7	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	75.7	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	81.0	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.8	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3351886)</b>										
ES1405930-007	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.6	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.5	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.8	----	52	132	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	103	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	93.3	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	95.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3351887)</b>										
ES1405930-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	108	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354873)</b>										
ES1405963-006	VK_SB02_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	98.8	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354873)</b>										
ES1405963-006	VK_SB02_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.2	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3354873)</b>										
ES1405963-006	VK_SB02_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	89.8	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	90.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.4	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	93.6	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	94.5	----	70	130	----	----
		EP080: Naphthalene	95-47-6	2.5 mg/kg	94.5	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354874)</b>										
ES1405963-006	VK_SB02_1.0	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	97.2	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.5	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354874)</b>										
ES1405963-006	VK_SB02_1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	96.2	----	70	130	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3354881)</b>										
ES1406076-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	# 63.9	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359158)</b>										
ES1405963-001	VU_MW04_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	113	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	120	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	109	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	112	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359159)</b>										
ES1405963-001	VU_MW04_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	103	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3350270)</b>										
ES1405944-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.2	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	95.4	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3350270)</b>										
ES1405944-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	107	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350271)</b>										
ES1405944-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	107	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350271)</b>										
ES1405944-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	108	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3350271)</b>										
ES1405944-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	91.5	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	91.2	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	100	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	105	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	95.6	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3351283)</b>										
ES1405949-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	86.5	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3353720)</b>										
ES1405661-008	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.2	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	97.6	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	99.0	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.6	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405963</b>	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 14
Order number	: 0237747	No. of samples analysed	: 14
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5, VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	----	----	----	24-MAR-2014	01-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VK_SB02_0.1, VC_MW01_0.25, VB_SB01_0.35,	18-MAR-2014	---	14-SEP-2014	----	26-MAR-2014	22-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5, VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	26-MAR-2014	14-SEP-2014	✓	26-MAR-2014	14-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5, VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	26-MAR-2014	15-APR-2014	✓	27-MAR-2014	15-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_SB01_0.5, VC_MW01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5, VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074D: Fumigants</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_1.0, VC_MW01_0.5	VB_SB01_0.5	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	24-MAR-2014	25-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5	VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP, VB_SB01_0.5 VU_MW09_0.2, VU_MW10_1.0, VK_SB02_1.0, VC_MW01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP VU_MW09_0.2, VU_MW10_1.0	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB02_1.0, VC_MW01_0.5 VB_SB01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	01-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW04_1.5, VU_MW08_0.5, D01_180314_GP VU_MW09_0.2, VU_MW10_1.0	18-MAR-2014	21-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VK_SB02_1.0, VC_MW01_0.5 VB_SB01_0.5	18-MAR-2014	24-MAR-2014	01-APR-2014	✓	24-MAR-2014	01-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP231)</b> VB_SB01_0.5, VC_MW01_0.5	18-MAR-2014	21-MAR-2014	14-SEP-2014	✓	21-MAR-2014	30-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_180314_GP	18-MAR-2014	24-MAR-2014	14-SEP-2014	✓	25-MAR-2014	14-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_180314_GP	18-MAR-2014	----	----	----	21-MAR-2014	15-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_180314_GP	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074H: Naphthalene</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Amber VOC Vial - Sulfuric Acid (EP074) R01_180314_GP	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_180314_GP	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_180314_GP	18-MAR-2014	24-MAR-2014	25-MAR-2014	✓	25-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_180314_GP, TB 3, TS 4	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_180314_GP, TB 3	18-MAR-2014	22-MAR-2014	01-APR-2014	✓	22-MAR-2014	01-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP066: Polychlorinated Biphenyls (PCB)	ES1406076-001	Anonymous	<b>Total Polychlorinated biphenyls</b>	----	63.9 %	70-130%	<b>Recovery less than lower data quality objective</b>
EP231: Perfluorinated Compounds	ES1405956-016	Anonymous	<b>PFOS</b>	1763-23-1	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074B: Oxygenated Compounds	4001944-002	----	<b>Vinyl Acetate</b>	108-05-4	60.5 %	61.4-134%	<b>Recovery less than lower control limit</b>
EP075(SIM)A: Phenolic Compounds	4001157-007	----	<b>2-Chlorophenol</b>	95-57-8	61.0 %	63.8-110%	<b>Recovery less than lower control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1405963</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : VALES POINT POWER STATION</b> <b>Order number : 0237747</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : GAVIN POWELL</b>	<b>Page : 1 of 3</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 19-MAR-2014</b> <b>Client Requested Due Date : 27-MAR-2014</b>	<b>Issue Date : 20-MAR-2014 12:09</b> <b>Scheduled Reporting Date : 27-MAR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 1 HARD</b> <b>Security Seal : Intact.</b>	<b>Temperature : 2.8°C - Ice present</b> <b>No. of samples received : 14</b> <b>No. of samples analysed : 14</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample SS01\_GP was not received, but received extra TB and TS4 lab will conducted TPH C6-C9/BTEX analysis, please confirm**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1405963-001	18-MAR-2014 08:50	VU_MW04_1.5					✓
ES1405963-002	18-MAR-2014 09:10	VU_MW09_0.2					✓
ES1405963-003	18-MAR-2014 09:45	VU_MW08_0.5					✓
ES1405963-004	18-MAR-2014 10:50	VU_MW10_1.0					✓
ES1405963-005	18-MAR-2014 10:50	D01_180314_GP					✓
ES1405963-006	18-MAR-2014 12:35	VK_SB02_1.0			✓		✓
ES1405963-008	18-MAR-2014 12:20	VK_SB02_0.1	✓				
ES1405963-009	18-MAR-2014 14:25	VB_SB01_0.5		✓	✓	✓	✓
ES1405963-010	18-MAR-2014 14:20	VB_SB01_0.35	✓				
ES1405963-011	18-MAR-2014 16:35	VC_MW01_0.25	✓				
ES1405963-012	18-MAR-2014 16:40	VC_MW01_0.5		✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1405963-007	18-MAR-2014 13:45	R01_180314_GP	✓			✓
ES1405963-014	18-MAR-2014 15:00	TB 3			✓	
ES1405963-015	18-MAR-2014 15:00	TS 4		✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTab )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTab )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406139</b>	Page	: 1 of 10
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: JE	No. of samples received	: 3
Site	: ----	No. of samples analysed	: 3
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	29	54	----	----	----
+150µm	----	1	%	20	50	----	----	----
+300µm	----	1	%	14	41	----	----	----
+425µm	----	1	%	8	34	----	----	----
+600µm	----	1	%	3	27	----	----	----
+1180µm	----	1	%	<1	19	----	----	----
+2.36mm	----	1	%	<1	12	----	----	----
+4.75mm	----	1	%	<1	6	----	----	----
+9.5mm	----	1	%	<1	3	----	----	----
+19.0mm	----	1	%	<1	<1	----	----	----
+37.5mm	----	1	%	<1	<1	----	----	----
+75.0mm	----	1	%	<1	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.4	3.7	4.4	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.9	19.0	15.0	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	71	46	----	----	----
Sand (>75 µm)	----	1	%	29	42	----	----	----
Gravel (>2mm)	----	1	%	<1	12	----	----	----
Cobbles (>6cm)	----	1	%	<1	<1	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	0.2	0.2	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	2.0	1.0	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.6	0.6	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	2.8	1.8	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	0.2	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	----	----
Barium	7440-39-3	10	mg/kg	----	----	<10	----	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	----	----
Boron	7440-42-8	50	mg/kg	----	----	<50	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Cadmium	7440-43-9	1	mg/kg	----	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	----	4	----	----
Cobalt	7440-48-4	2	mg/kg	----	----	<2	----	----
Copper	7440-50-8	5	mg/kg	----	----	<5	----	----
Lead	7439-92-1	5	mg/kg	----	----	<5	----	----
Manganese	7439-96-5	5	mg/kg	----	----	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	----	----	4	----	----
Nickel	7440-02-0	2	mg/kg	----	----	<2	----	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	----	----
Vanadium	7440-62-2	5	mg/kg	----	----	24	----	----
Zinc	7440-66-6	5	mg/kg	----	----	<5	----	----
Thallium	7440-28-0	5	mg/kg	----	----	<5	----	----
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	4	11	----	----	----
Copper	7440-50-8	5	mg/kg	<5	6	----	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.07	0.06	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	80.0	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.9	90.8	----	----	----
Toluene-D8	2037-26-5	0.1	%	96.5	101	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.1	89.6	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.4	91.0	87.7	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	88.0	94.7	88.9	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	111	118	112	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VD_MW05_5.0	VC_MW01_4.0	VO_MW03_7.0	---	---
Client sampling date / time	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	---	---
Compound	ES1406139-001	ES1406139-002	ES1406139-003	---	---

Compound	CAS Number	LOR	Unit	ES1406139-001	ES1406139-002	ES1406139-003	---	---
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	92.0	99.4	91.9	---	---
Anthracene-d10	1719-06-8	0.1	%	90.4	97.8	89.9	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	89.7	97.7	89.5	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	124	102	---	---
Toluene-D8	2037-26-5	0.1	%	105	110	96.2	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	105	111	91.4	---	---



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

**QUALITY CONTROL REPORT**

Work Order	: <b>ES1406139</b>	Page	: 1 of 16
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: JE	No. of samples received	: 3
Order number	: 0237747	No. of samples analysed	: 3
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Organics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3358674)</b>									
ES1406135-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.8	7.0	2.6	0% - 20%
ES1406139-001	VD_MW05_5.0	EA002: pH Value	----	0.1	pH Unit	4.4	4.5	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3359832)</b>									
ES1406137-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.6	19.0	3.1	0% - 50%
ES1406138-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	9.2	0.0	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3355019)</b>									
ES1406137-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.3	7.2	2.3	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.0	2.0	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	10.1	10.0	1.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.8	0.8	0.0	0% - 20%
ES1406284-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.5	1.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.3	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3365883)</b>									
ES1406137-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	8	10	12.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	15	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	10	23.6	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
ES1406138-005	Anonymous	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3365883) - continued</b>									
ES1406138-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	46	54	16.6	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	8	7	14.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	26	32.9	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3365884)</b>									
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406138-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3358961)</b>									
EM1402523-002	Anonymous	EP003: Total Organic Carbon	----	0.02	%	3.81	3.82	0.4	0% - 20%
ES1406140-004	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.16	0.13	19.1	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3355400)</b>									
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406140-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074C: Sulfonated Compounds (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3355405)</b>									
ES1406137-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3355405) - continued</b>											
ES1406137-002	Anonymous	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3355405)</b>											
ES1406137-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3352839)</b>											
ES1406004-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406004-012	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3352839)</b>											
ES1406004-001	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3352839) - continued</b>									
ES1406004-001	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406004-012	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3352838)</b>									
ES1406004-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406004-012	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3352838) - continued</b>										
ES1406004-012	Anonymous	EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3355404)</b>										
ES1406137-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406141-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3352838)</b>										
ES1406004-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406004-012	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3355404)</b>										
ES1406137-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406141-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3355404)</b>										
ES1406137-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406141-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP231: Perfluorinated Compounds (QC Lot: 3359304)</b>										
ES1406139-002	VC_MW01_4.0	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	
ES1406360-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit	



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3355019)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	104	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.4	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.6	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	95.6	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	106	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	102	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	102	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	91.7	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	126	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.8	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	96.0	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.6	70	105	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3358961)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	104	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	77.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3355405)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	96.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	96.4	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	96.6	63	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3355405) - continued</b>								
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	97.8	64	130
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	63	129
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	63	129
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	96.8	62	130
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	98.1	61	131
<b>EP074B: Oxygenated Compounds (QCLot: 3355405)</b>								
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	77.4	29.6	156
		5	mg/kg	<5	----	----	----	----
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	93.9	58	136
		5	mg/kg	<5	----	----	----	----
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	90.6	54	138
		5	mg/kg	<5	----	----	----	----
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	90.2	54	136
		5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds (QCLot: 3355405)</b>								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	79.1	54	126
<b>EP074D: Fumigants (QCLot: 3355405)</b>								
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	91.8	55	133
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	95.0	69	127
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	89.0	54	124
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	82.3	51	125
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	84.2	66	126
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3355405)</b>								
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	124	30	148
		5	mg/kg	<5	----	----	----	----
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	119	41	141
		5	mg/kg	<5	----	----	----	----
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	143	43	147
		5	mg/kg	<5	----	----	----	----
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	106	47	141
		5	mg/kg	<5	----	----	----	----
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	115	49	143
		5	mg/kg	<5	----	----	----	----
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	112	49	135
		5	mg/kg	<5	----	----	----	----
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	93.8	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	88.3	43	129
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.2	62	130
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.0	66	132



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3355405) - continued</b>									
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	93.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	93.2	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	93.2	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	93.9	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.6	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	96.2	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	86.6	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	100	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	84.1	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	95.4	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	87.8	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.5	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	88.7	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	80.3	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	102	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3355405)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	98.7	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	96.2	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	95.8	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	95.7	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.0	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	95.0	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	95.5	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	101	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3355405)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	94.3	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	87.6	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	88.0	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3352839)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.6	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	85.7	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	90.7	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	93.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	77.4	60.3	117	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3352839) - continued</b>									
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.5	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	85.7	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	89.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	90.7	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	77.5	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	75.0	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.5	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3352839)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	94.7	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	94.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	93.4	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	96.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	97.1	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	95.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	96.1	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.2	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	88.8	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	90.6	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	86.0	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	89.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	87.4	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	85.3	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	87.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	83.8	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3352838)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	111	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	98.3	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	80.9	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.6	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3352838)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	100	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.6	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	64.2	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.4	68.4	128	
<b>EP080: BTEXN (QCLot: 3355404)</b>									



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3355404) - continued</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.8	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	81.3	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	82.7	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.7	62	138
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	75.6	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	72.7	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	75.9	56	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>							
ES1406137-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	98.1	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>							
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.5	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>							
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3355405)</b>							
ES1406137-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.7	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3355405)</b>							
ES1406137-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.2	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3352839)</b>								
ES1406004-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.7	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.9	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	91.2	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.2	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3352839)</b>								
ES1406004-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.5	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	103	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3352838)</b>								
ES1406004-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	75.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	72.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.6	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>								
ES1406137-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3352838)</b>								
ES1406004-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	92.6	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>								
ES1406137-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	83.6	70	130	
<b>EP080: BTEXN (QCLot: 3355404)</b>								
ES1406137-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.3	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	80.4	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>								
ES1406139-002	VC_MW01_4.0	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	56	138	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3352838)</b>											
ES1406004-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	75.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	72.2	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	72.6	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3352838)</b>											
ES1406004-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	92.6	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3352839)</b>											
ES1406004-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.7	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.9	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	91.2	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.8	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.2	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3352839)</b>											
ES1406004-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	103	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>											
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	83.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.3	----	70	130	----	----	
	91-20-3	2.5 mg/kg	80.4	----	70	130	----	----			
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3355405)</b>											
ES1406137-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	77.7	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.3	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3355405)</b>											
ES1406137-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.2	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>											
ES1406139-002	VC_MW01_4.0	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	----	54	146	----	----	



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3359304) - continued</b>										
ES1406139-002	VC_MW01_4.0	EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>										
ES1406137-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	98.1	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>										
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.5	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406139</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: JE	No. of samples received	: 3
Order number	: 0237747	No. of samples analysed	: 3
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
Soil Glass Jar - Unpreserved (EA002) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	----	----	----	26-MAR-2014	02-APR-2014	✓
<b>EA150: Particle Sizing</b>								
Snap Lock Bag (EA150) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	---	15-SEP-2014	----	31-MAR-2014	24-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
Snap Lock Bag (EA150) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	---	15-SEP-2014	----	31-MAR-2014	24-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>								
Soil Glass Jar - Unpreserved (ED007) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	26-MAR-2014	16-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	31-MAR-2014	15-SEP-2014	✓	01-APR-2014	15-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	31-MAR-2014	16-APR-2014	✓	01-APR-2014	16-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Pulp Bag (EP003) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	27-MAR-2014	16-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Soil Glass Jar - Unpreserved (EP066) VC_MW01_4.0		19-MAR-2014	26-MAR-2014	02-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP071) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	27-MAR-2014	05-MAY-2014	✓
<b>EP074D: Fumigants</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
Soil Glass Jar - Unpreserved (EP074) VD_MW05_5.0,	VC_MW01_4.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP080) VD_MW05_5.0, VO_MW03_7.0	VC_MW01_4.0,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP231: Perfluorinated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP231)</b> VC_MW01_4.0	19-MAR-2014	27-MAR-2014	15-SEP-2014	✓	27-MAR-2014	06-MAY-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Matrix Spikes (MS) - Continued</b>							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.



Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406139</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JE		

#### Dates

<b>Date Samples Received</b>	: 20-MAR-2014	<b>Issue Date</b>	: 21-MAR-2014 17:53
<b>Client Requested Due Date</b>	: 02-APR-2014	<b>Scheduled Reporting Date</b>	: <b>02-APR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 2.9°C - Ice present
<b>No. of coolers/boxes</b>	: 4 HARD	<b>No. of samples received</b>	: 3
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 3

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **TOC analysis will be conducted by ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS
ES1406139-001	19-MAR-2014 15:00	VD_MW05_5.0	✓	✓	✓		✓		✓	
ES1406139-002	19-MAR-2014 15:00	VC_MW01_4.0	✓	✓	✓		✓	✓	✓	✓
ES1406139-003	19-MAR-2014 15:00	VO_MW03_7.0	✓			✓				

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-03 15 Metals (NEPM 2013 Suite -incl. Digestion)	SOIL - S-24 TRH/BTEX/NPAH + Phenols	SOIL - S-27 TRH/BTEX/NPAH/Phenols/8Metals
ES1406139-001	19-MAR-2014 15:00	VD_MW05_5.0			✓
ES1406139-002	19-MAR-2014 15:00	VC_MW01_4.0			✓
ES1406139-003	19-MAR-2014 15:00	VO_MW03_7.0	✓	✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTab )	Email	john.ewing@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTab )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





# Certificate of Analysis

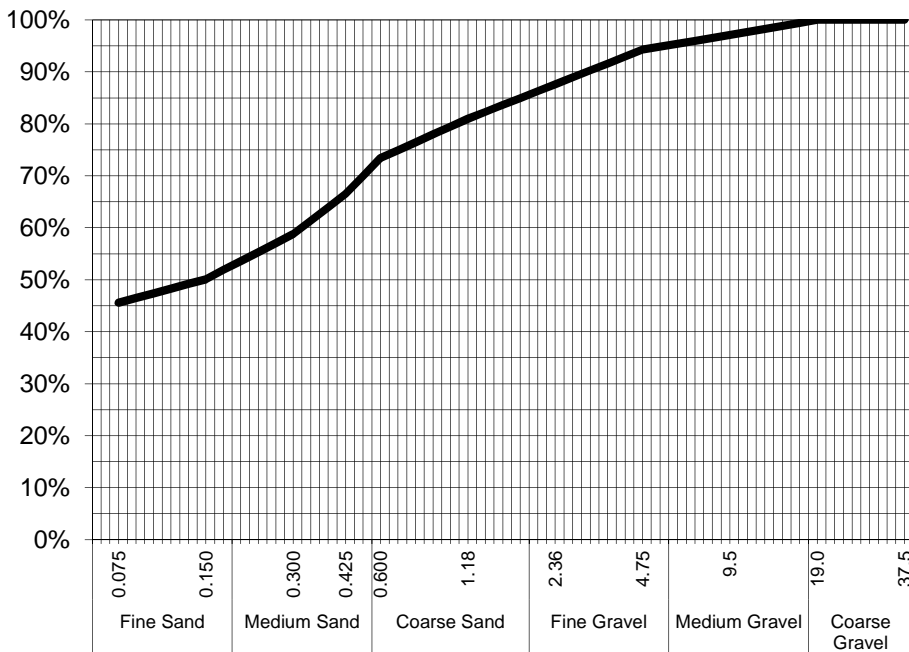
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
ph 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 31-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 20-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406139-002 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VC\_MW01\_4.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	97%
4.75	94%
2.36	88%
1.18	81%
0.600	73%
0.425	67%
0.300	59%
0.150	50%
0.075	46%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.3

**Analysed:** 28-Mar-14

**Limit of Reporting:** 1%

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406140</b>	Page	: 1 of 29
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 01-APR-2014
Sampler	: GP	No. of samples received	: 21
Site	: ----	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	30	----	----
+150µm	----	1	%	----	----	21	----	----
+300µm	----	1	%	----	----	15	----	----
+425µm	----	1	%	----	----	9	----	----
+600µm	----	1	%	----	----	5	----	----
+1180µm	----	1	%	----	----	2	----	----
+2.36mm	----	1	%	----	----	2	----	----
+4.75mm	----	1	%	----	----	1	----	----
+9.5mm	----	1	%	----	----	<1	----	----
+19.0mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	4.3	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	11.0	----	----	12.3
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	70	----	----
Sand (>75 µm)	----	1	%	----	----	29	----	----
Gravel (>2mm)	----	1	%	----	----	2	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	No	----
Asbestos Type	1332-21-4	-	--	-	----	----	-	----
Sample weight (dry)	----	0.01	g	1060	----	----	854	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	S.SPOONER	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	1.06	----	----	0.854	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	<0.1	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	<0.002	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	<0.01	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	<0.001	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	----	----	No	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	1.3	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	2.7	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.9	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	5.0	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	<0.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	6	----	----	5
Copper	7440-50-8	5	mg/kg	----	7	----	----	<5
Lead	7439-92-1	5	mg/kg	----	<5	----	----	<5
Nickel	7440-02-0	2	mg/kg	----	3	----	----	<2
Zinc	7440-66-6	5	mg/kg	----	12	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	<0.1
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.16	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074B: Oxygenated Compounds</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EP074B: Oxygenated Compounds - Continued</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
				19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	<0.0005
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	<0.005
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	82.0	----	----	82.0
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	104	----	----	97.8
Toluene-D8	2037-26-5	0.1	%	----	113	----	----	111
4-Bromofluorobenzene	460-00-4	0.1	%	----	91.8	----	----	91.9
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	103	----	----	113
2-Chlorophenol-D4	93951-73-6	0.1	%	----	98.6	----	----	109
2,4,6-Tribromophenol	118-79-6	0.1	%	----	81.6	----	----	85.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	85.5	----	----	87.6
Anthracene-d10	1719-06-8	0.1	%	----	102	----	----	101
4-Terphenyl-d14	1718-51-0	0.1	%	----	86.4	----	----	86.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VS_SB01_0.2	VS_SB01_0.5	VS_SB01_1.5	VS_MW02_0.5	VS_MW02_1.0
Client sampling date / time	19-MAR-2014 09:05	19-MAR-2014 09:15	19-MAR-2014 09:30	19-MAR-2014 10:15	19-MAR-2014 10:25
Compound	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406140-001	ES1406140-002	ES1406140-004	ES1406140-005	ES1406140-006
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	107	----	----	98.2
Toluene-D8	2037-26-5	0.1	%	----	105	----	----	99.7
4-Bromofluorobenzene	460-00-4	0.1	%	----	96.0	----	----	94.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	----	22	----
+150µm	----	1	%	----	----	----	19	----
+300µm	----	1	%	----	----	----	16	----
+425µm	----	1	%	----	----	----	14	----
+600µm	----	1	%	----	----	----	12	----
+1180µm	----	1	%	----	----	----	10	----
+2.36mm	----	1	%	----	----	----	7	----
+4.75mm	----	1	%	----	----	----	4	----
+9.5mm	----	1	%	----	----	----	<1	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	4.0	----
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	----	536	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	12.1	13.2	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	----	78	----
Sand (>75 µm)	----	1	%	----	----	----	14	----
Gravel (>2mm)	----	1	%	----	----	----	7	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Sample weight (dry)	----	0.01	g	1130	----	----	----	369
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	1.13	----	----	----	0.369
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	<0.01



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	1.5	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	3.4	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.2	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	0.7	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	5.8	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	<0.1	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	5	3	----	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	----	<5	<5	----	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	----	----
Zinc	7440-66-6	5	mg/kg	----	<5	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	----	0.08	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
				19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	----	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg	----	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	<0.005	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	80.0	83.0	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	102	----	----	----
Toluene-D8	2037-26-5	0.1	%	----	111	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	95.2	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	87.0	98.6	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	86.2	97.5	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	59.6	75.1	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sample ID	VS_MW01_0.2	VS_MW01_1.5	VM_MW01_0.5	VM_MW01_1.5	VM_MW01_0.15
Client sampling date / time	19-MAR-2014 10:45	19-MAR-2014 11:05	19-MAR-2014 11:30	19-MAR-2014 11:50	19-MAR-2014 11:15
Compound	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406140-007	ES1406140-008	ES1406140-009	ES1406140-010	ES1406140-011
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	80.7	85.9	----	----
Anthracene-d10	1719-06-8	0.1	%	----	93.3	100	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	74.8	78.0	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	102	97.8	----	----
Toluene-D8	2037-26-5	0.1	%	----	101	82.9	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	98.4	83.2	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW04_0.3	VM_MW04_1.0	VM_MW03_0.2	VM_MW03_1.5	VG_MW02_1.0
				19-MAR-2014 12:50	19-MAR-2014 13:00	19-MAR-2014 13:25	19-MAR-2014 13:45	19-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1406140-013	ES1406140-014	ES1406140-015	ES1406140-016	ES1406140-017
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	126	----	202	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	16.5	----	9.2	12.5
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----
Asbestos Type	1332-21-4	-	--	-	----	-	----	----
Sample weight (dry)	----	0.01	g	804	----	870	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.804	----	0.870	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg	----	7	----	7	7
Copper	7440-50-8	5	mg/kg	----	<5	----	14	<5
Lead	7439-92-1	5	mg/kg	----	<5	----	5	<5
Nickel	7440-02-0	2	mg/kg	----	<2	----	13	<2
Zinc	7440-66-6	5	mg/kg	----	<5	----	42	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	<1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW04_0.3	VM_MW04_1.0	VM_MW03_0.2	VM_MW03_1.5	VG_MW02_1.0
				19-MAR-2014 12:50	19-MAR-2014 13:00	19-MAR-2014 13:25	19-MAR-2014 13:45	19-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1406140-013	ES1406140-014	ES1406140-015	ES1406140-016	ES1406140-017
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	<100



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW04_0.3	VM_MW04_1.0	VM_MW03_0.2	VM_MW03_1.5	VG_MW02_1.0
				19-MAR-2014 12:50	19-MAR-2014 13:00	19-MAR-2014 13:25	19-MAR-2014 13:45	19-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1406140-013	ES1406140-014	ES1406140-015	ES1406140-016	ES1406140-017
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	83.0	----	79.0	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	95.9	----	101	109
2-Chlorophenol-D4	93951-73-6	0.1	%	----	95.3	----	99.6	105
2,4,6-Tribromophenol	118-79-6	0.1	%	----	82.1	----	75.4	61.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	82.6	----	92.6	73.5
Anthracene-d10	1719-06-8	0.1	%	----	105	----	102	113
4-Terphenyl-d14	1718-51-0	0.1	%	----	87.5	----	86.6	75.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	106	----	110	111
Toluene-D8	2037-26-5	0.1	%	----	91.7	----	83.8	82.1



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW04_0.3	VM_MW04_1.0	VM_MW03_0.2	VM_MW03_1.5	VG_MW02_1.0
				19-MAR-2014 12:50	19-MAR-2014 13:00	19-MAR-2014 13:25	19-MAR-2014 13:45	19-MAR-2014 15:45
Compound	CAS Number	LOR	Unit	ES1406140-013	ES1406140-014	ES1406140-015	ES1406140-016	ES1406140-017
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
4-Bromofluorobenzene	460-00-4	0.1	%	----	95.7	----	89.1	79.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_190314_GP	VG_MW02_1.5	TRIP SPIKE	TRIP BLANK	TSC
				19-MAR-2014 15:45	19-MAR-2014 15:55	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406140-018	ES1406140-019	ES1406140-020	ES1406140-021	ES1406140-022
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	60	----	----	----
+150µm	----	1	%	----	52	----	----	----
+300µm	----	1	%	----	47	----	----	----
+425µm	----	1	%	----	41	----	----	----
+600µm	----	1	%	----	36	----	----	----
+1180µm	----	1	%	----	29	----	----	----
+2.36mm	----	1	%	----	19	----	----	----
+4.75mm	----	1	%	----	10	----	----	----
+9.5mm	----	1	%	----	<1	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	3.8	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.8	----	----	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	40	----	----	----
Sand (>75 µm)	----	1	%	----	41	----	----	----
Gravel (>2mm)	----	1	%	----	19	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.1	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.7	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.6	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	2.5	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	0.2	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	7	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_190314_GP	VG_MW02_1.5	TRIP SPIKE	TRIP BLANK	TSC
				19-MAR-2014 15:45	19-MAR-2014 15:55	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406140-018	ES1406140-019	ES1406140-020	ES1406140-021	ES1406140-022
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	<b>0.06</b>	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_190314_GP	VG_MW02_1.5	TRIP SPIKE	TRIP BLANK	TSC
				19-MAR-2014 15:45	19-MAR-2014 15:55	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406140-018	ES1406140-019	ES1406140-020	ES1406140-021	ES1406140-022
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<b>0.7</b>	<0.2	<b>0.6</b>
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<b>19.1</b>	<0.5	<b>19.1</b>
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<b>2.1</b>	<0.5	<b>2.2</b>
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<b>10.5</b>	<0.5	<b>10.7</b>
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<b>4.2</b>	<0.5	<b>4.5</b>
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	<b>14.7</b>	----	<b>15.2</b>
^ Sum of BTEX	----	0.2	mg/kg	----	----	<b>36.6</b>	----	<b>37.1</b>
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				D01_190314_GP	VG_MW02_1.5	TRIP SPIKE	TRIP BLANK	TSC
				19-MAR-2014 15:45	19-MAR-2014 15:55	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406140-018	ES1406140-019	ES1406140-020	ES1406140-021	ES1406140-022
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	100	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	99.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	74.0	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	88.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	102	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	91.8	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	----	101	106	93.1
Toluene-D8	2037-26-5	0.1	%	89.0	----	91.5	91.5	83.4
4-Bromofluorobenzene	460-00-4	0.1	%	88.6	----	89.5	91.4	84.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_190314\_GP

---

---

---

---

Client sampling date / time

19-MAR-2014 12:40

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406140-012	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP066: Polychlorinated Biphenyls (PCB)

Total Polychlorinated biphenyls	---	1	µg/L	<1	---	---	---	---
---------------------------------	-----	---	------	----	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_190314\_GP

---

---

---

---

Client sampling date / time

19-MAR-2014 12:40

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406140-012	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_190314\_GP**

----

----

----

----

Client sampling date / time

19-MAR-2014 12:40

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406140-012	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	110	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	44.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	88.8	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	51.1	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	84.9	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	85.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	85.3	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	115	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	111	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VS_SB01_0.2 - 19-MAR-2014 09:05	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VS_MW02_0.5 - 19-MAR-2014 10:15	Mid yellow-brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VS_MW01_0.2 - 19-MAR-2014 10:45	Mid brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VM_MW01_0.15 - 19-MAR-2014 11:15	Mid brown clay soil with grey rocks plus some quartz grains and some vegetation.
EA200: Description	VM_MW04_0.3 - 19-MAR-2014 12:50	Mid red-orange clay soil with red and grey rocks plus a trace of vegetation.
EA200: Description	VM_MW03_0.2 - 19-MAR-2014 13:25	Mid yellow-brown clay soil with grey and red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406140</b>	Page	: 1 of 23
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 01-APR-2014
Sampler	: GP	No. of samples received	: 21
Order number	: 0237747	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC



NATA Accredited  
 Laboratory 825

Accredited for  
 compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Organics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Lana Nguyen	Senior LCMS Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3358674)</b>									
ES1406135-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.8	7.0	2.6	0% - 20%
ES1406139-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.4	4.5	0.0	0% - 20%
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3360715)</b>									
ES1406140-009	VM_MW01_0.5	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	536	597	10.8	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3359832)</b>									
ES1406137-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.6	19.0	3.1	0% - 50%
ES1406138-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	9.2	0.0	No Limit
<b>EA055: Moisture Content (QC Lot: 3359833)</b>									
ES1406140-014	VM_MW04_1.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.5	17.4	4.8	0% - 50%
ES1406141-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.6	17.4	4.9	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3355019)</b>									
ES1406137-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.3	7.2	2.3	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.0	2.0	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	10.1	10.0	1.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.8	0.8	0.0	0% - 20%
ES1406284-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.5	1.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.3	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3365883)</b>									
ES1406137-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	10	23.6	No Limit
ES1406138-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3365883) - continued</b>									
ES1406138-005	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	26	32.9	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3365885)</b>									
ES1406140-008	VS_MW01_1.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406239-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	32	31	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	12	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	11	0.0	No Limit
EG005T: Zinc	7440-66-6	5	mg/kg	6	5	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3365884)</b>									
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406138-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3365886)</b>									
ES1406140-008	VS_MW01_1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406239-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3358961)</b>									
EM1402523-002	Anonymous	EP003: Total Organic Carbon	----	0.02	%	3.81	3.82	0.4	0% - 20%
ES1406140-004	VS_SB01_1.5	EP003: Total Organic Carbon	----	0.02	%	0.16	0.13	19.1	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3355400)</b>									
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406140-016	VM_MW03_1.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3354802) - continued</b>									
ES1406140-002	VS_SB01_0.5	EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354802) - continued</b>									
ES1406140-002	VS_SB01_0.5	EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3354802)</b>									
ES1406140-002	VS_SB01_0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354947)</b>									
ES1406136-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406138-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354947) - continued</b>									
ES1406138-008	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354947)</b>									
ES1406136-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406138-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354947) - continued</b>									
ES1406138-008	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354801)</b>									
ES1406140-002	VS_SB01_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406227-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354946)</b>									
ES1406136-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406138-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3355422)</b>									
ES1406290-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406290-011	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354801)</b>									
ES1406140-002	VS_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406227-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354946)</b>									
ES1406136-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406138-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3355422)</b>									
ES1406290-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406290-011	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3354801)</b>									
ES1406140-002	VS_SB01_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit





Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3354801) - continued</b>									
ES1406140-002	VS_SB01_0.5	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		ES1406227-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3359304)</b>									
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1406360-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
<b>Sub-Matrix: <b>WATER</b></b>									
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3363133)</b>									
ES1406140-012	R01_190314_GP	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1406544-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.191	0.192	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.011	0.011	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.109	0.109	0.0	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354821)</b>									
ES1406140-012	R01_190314_GP	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406281-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Page : 10 of 23  
 Work Order : ES1406140  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406449-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406449-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406449-003	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	8	9	12.6	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3360715)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	99.4	96	104	
<b>ED007: Exchangeable Cations (QCLot: 3355019)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	117	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.4	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.6	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	113	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	95.6	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	102	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.8	81	133	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365885)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	124	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.8	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	100	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.6	70	105	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365886)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	97.6	70	105	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3358961)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	104	70	130	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	77.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3354802)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3354802) - continued</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	95.4	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	100	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	98.6	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	97.1	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	99.3	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	98.0	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	96.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	96.6	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	99.5	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3354802)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	78.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	93.3	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	86.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	95.5	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3354802)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	79.7	54	126	
<b>EP074D: Fumigants (QCLot: 3354802)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	94.3	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	96.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	87.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	79.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	85.4	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354802)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	128	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	121	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	145	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	107	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	116	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	116	49	135	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354802) - continued</b>									
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	98.3	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	88.9	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	95.7	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.6	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	94.5	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	95.1	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	95.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	94.4	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	93.4	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	97.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	89.2	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	98.2	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	103	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	105	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	89.6	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	97.4	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	92.2	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	101	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	91.3	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	87.4	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	105	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354802)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	101	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	95.8	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	100	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	97.7	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.6	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	94.7	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	99.3	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3354802)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	94.5	62	120	
EP074: Dibromochloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	88.7	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	91.3	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	94.3	60	126	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354947)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354947) - continued</b>									
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	98.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	100	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.5	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	88.3	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.7	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	82.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	83.6	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	75.6	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	22.6	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354947)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	96.0	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.8	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	98.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	89.2	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	111	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.0	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	110	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	102	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	112	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	99.2	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	98.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	111	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354801)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	81.9	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354946)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	101	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355422)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	80.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	98.5	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	90.4	64	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354801)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	83.1	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354946)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.5	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	103	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	120	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355422)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	83.1	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.4	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	79.6	63	131	
<b>EP080: BTEXN (QCLot: 3354801)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	80.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.7	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	82.8	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	84.2	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	78.1	62	138	
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>									
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	75.6	54	146	
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	72.7	54	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	75.9	56	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363133)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355153)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	78.9	61.6	107	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	40.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	71.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	67.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	82.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	81.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	78.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	87.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	84.9	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	69.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	78.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	87.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	87.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	86.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	89.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152) - continued</b>									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	77.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	91.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	99.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	86.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	81.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	83.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	101	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	90.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3358882)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	96.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355151)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.9	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	106	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3358882)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.1	75	127	
<b>EP080: BTEXN (QCLot: 3358882)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	92.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.5	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	90.6	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.4	72	122	





Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
				Result	LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3358882) - continued</b>								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	88.9	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>							
ES1406137-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	98.1	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365885)</b>							
ES1406140-008	VS_MW01_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	118	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	103	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.5	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	102	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>							
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.5	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365886)</b>							
ES1406140-008	VS_MW01_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	92.7	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>							
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354802)</b>							
ES1406140-002	VS_SB01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.3	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	80.9	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354802)</b>							
ES1406140-002	VS_SB01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	85.1	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354947)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354947) - continued</b>								
ES1406136-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	115	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	108	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.9	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.5	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.8	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354947)</b>								
ES1406136-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.3	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354801)</b>								
ES1406140-002	VS_SB01_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	86.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354946)</b>								
ES1406136-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.3	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	110	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355422)</b>								
ES1406290-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.1	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	69.1	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354801)</b>								
ES1406140-002	VS_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354946)</b>								
ES1406136-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	100	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.1	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355422)</b>								
ES1406290-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	90.5	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	66.4	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.3	52	132	
<b>EP080: BTEXN (QCLot: 3354801)</b>								
ES1406140-002	VS_SB01_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.4	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	76.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.6	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.2	70	130	



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>							
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	56	138

Sub-Matrix: WATER				Matrix Spike (MS) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	SpikeRecovery(%)	Recovery Limits (%)		
				Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363133)</b>								
ES1406204-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	70	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	118	70	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	117	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	120	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	117	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	115	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>								
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3358882)</b>								
ES1406354-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3358882)</b>								
ES1406354-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.6	70	130	
<b>EP080: BTEXN (QCLot: 3358882)</b>								
ES1406354-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	72.8	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	89.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.0	70	130	
		EP080: Naphthalene	91-20-3	25 µg/L	78.5	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354801)</b>										



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354801) - continued</b>											
ES1406140-002	VS_SB01_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	86.0	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354801)</b>											
ES1406140-002	VS_SB01_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354801)</b>											
ES1406140-002	VS_SB01_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	76.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.6	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.2	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354802)</b>											
ES1406140-002	VS_SB01_0.5	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	82.3	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	80.9	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354802)</b>											
ES1406140-002	VS_SB01_0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	85.1	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354946)</b>											
ES1406136-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	83.8	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	88.3	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	110	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354946)</b>											
ES1406136-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	100	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.1	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354947)</b>											
ES1406136-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	115	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	108	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	88.9	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.5	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.8	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354947)</b>											
ES1406136-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.3	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>											
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355422)</b>											
ES1406290-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	78.1	----	73	137	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355422) - continued</b>										
ES1406290-001	Anonymous	EP071: C15 - C28 Fraction	----	3140 mg/kg	69.1	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	69.2	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355422)</b>										
ES1406290-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	90.5	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	66.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.3	----	52	132	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>										
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365883)</b>										
ES1406137-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	109	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	98.1	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365884)</b>										
ES1406137-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.5	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3365885)</b>										
ES1406140-008	VS_MW01_1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	118	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	103	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	103	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.5	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	102	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3365886)</b>										
ES1406140-008	VS_MW01_1.5	EG035T: Mercury	7439-97-6	5 mg/kg	92.7	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>										
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.6	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3358882)</b>										
ES1406354-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.4	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	72.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.2	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	89.7	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	90.0	----	70	130	----	----
		EP080: Naphthalene	95-47-6	25 µg/L	78.5	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363133)</b>										
ES1406204-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	118	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	117	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	120	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	117	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	115	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406140</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 01-APR-2014
Sampler	: GP	No. of samples received	: 21
Order number	: 0237747	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VS_SB01_1.5, VG_MW02_1.5	VM_MW01_1.5,	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EA032: Electrical Conductivity (saturated paste)</b>								
<b>Soil Glass Jar - Unpreserved (EA032)</b> VM_MW01_0.5, VM_MW03_1.5	VM_MW04_1.0,	19-MAR-2014	---	---	---	27-MAR-2014	15-SEP-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0,	VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	19-MAR-2014	---	---	---	26-MAR-2014	02-APR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VS_SB01_1.5, VG_MW02_1.5	VM_MW01_1.5,	19-MAR-2014	---	15-SEP-2014	---	31-MAR-2014	24-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VS_SB01_1.5, VG_MW02_1.5	VM_MW01_1.5,	19-MAR-2014	---	15-SEP-2014	---	31-MAR-2014	24-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VS_SB01_0.2, VS_MW01_0.2, VM_MW04_0.3,	VS_MW02_0.5, VM_MW01_0.15, VM_MW03_0.2	19-MAR-2014	---	15-SEP-2014	---	01-APR-2014	28-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VS_SB01_1.5, VG_MW02_1.5	VM_MW01_1.5,	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	26-MAR-2014	16-APR-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	19-MAR-2014	31-MAR-2014	15-SEP-2014	✓	01-APR-2014	15-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	19-MAR-2014	31-MAR-2014	16-APR-2014	✓	01-APR-2014	16-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VS_SB01_1.5, VG_MW02_1.5, VM_MW01_1.5	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	27-MAR-2014	16-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	19-MAR-2014	27-MAR-2014	02-APR-2014	✓	27-MAR-2014	06-MAY-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> TRIP BLANK	19-MAR-2014	27-MAR-2014	02-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5, VS_MW02_1.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5, VS_MW02_1.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5, VS_MW02_1.0	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5 VS_MW02_1.0,	<b>19-MAR-2014</b>	<b>26-MAR-2014</b>	26-MAR-2014	✓	<b>26-MAR-2014</b>	26-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5 VS_MW02_1.0,	<b>19-MAR-2014</b>	<b>26-MAR-2014</b>	26-MAR-2014	✓	<b>26-MAR-2014</b>	26-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5 VS_MW02_1.0,	<b>19-MAR-2014</b>	<b>26-MAR-2014</b>	26-MAR-2014	✓	<b>26-MAR-2014</b>	26-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VS_SB01_0.5, VS_MW01_1.5 VS_MW02_1.0,	<b>19-MAR-2014</b>	<b>26-MAR-2014</b>	26-MAR-2014	✓	<b>26-MAR-2014</b>	26-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	<b>19-MAR-2014</b>	<b>27-MAR-2014</b>	02-APR-2014	✓	<b>27-MAR-2014</b>	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP	<b>19-MAR-2014</b>	<b>27-MAR-2014</b>	02-APR-2014	✓	<b>27-MAR-2014</b>	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, TRIP SPIKE, TSC VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP, TRIP BLANK,	<b>19-MAR-2014</b>	<b>26-MAR-2014</b>	02-APR-2014	✓	<b>26-MAR-2014</b>	02-APR-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VS_SB01_0.5, VS_MW01_1.5, VM_MW04_1.0, VG_MW02_1.0, TRIP BLANK	VS_MW02_1.0, VM_MW01_0.5, VM_MW03_1.5, D01_190314_GP,	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP231)</b> VS_SB01_0.5, VS_MW01_1.5	VS_MW02_1.0,	19-MAR-2014	27-MAR-2014	15-SEP-2014	✓	27-MAR-2014	06-MAY-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_190314_GP		19-MAR-2014	28-MAR-2014	15-SEP-2014	✓	28-MAR-2014	15-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_190314_GP		19-MAR-2014	----	----	----	24-MAR-2014	16-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Amber Glass Bottle - Unpreserved (EP066)</b> R01_190314_GP		19-MAR-2014	25-MAR-2014	26-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_190314_GP		19-MAR-2014	25-MAR-2014	26-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_190314_GP		19-MAR-2014	25-MAR-2014	26-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_190314_GP		19-MAR-2014	25-MAR-2014	26-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R01_190314_GP		19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R01_190314_GP		19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	36	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)





Analytical Methods	Method	Matrix	Method Descriptions
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1406140-012	R01_190314_GP	Phenol-d6	13127-88-3	44.5 %	10.0-44 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order** : **ES1406140**

**Client** : **ENVIRO RESOURCES MANAGEMENT**      **Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING      **Contact** : Barbara Hanna  
**Address** : GROUND FLOOR      **Address** : 277-289 Woodpark Road Smithfield  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail** : john.ewing@erm.com      **E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 02 8584 8888      **Telephone** : +61 2 8784 8555  
**Facsimile** : +61 02 8584 8800      **Facsimile** : +61 2 8784 8555

**Project** : VALES POINT POWER STATION      **Page** : 1 of 4  
**Order number** : 0237747  
**C-O-C number** : ----      **Quote number** : ES2014ENVRES0385 (SY/050/14 V3)  
**Site** : ----  
**Sampler** : GP      **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

**Date Samples Received** : 20-MAR-2014      **Issue Date** : 22-MAR-2014 09:43  
**Client Requested Due Date** : 01-APR-2014      **Scheduled Reporting Date** : **01-APR-2014**

**Delivery Details**

**Mode of Delivery** : Carrier      **Temperature** : 2.9°C - Ice present  
**No. of coolers/boxes** : 4 HARD      **No. of samples received** : 21  
**Security Seal** : Intact.      **No. of samples analysed** : 21

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample T01 send to Envirolab**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA200N)	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines - SOIL - ED007 Def	CEC / Exchangeable Cations (ED007) -Default	SOIL - EP003 Total Organic Carbon (TOC ) in Soil	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds
ES1406140-001	19-MAR-2014 09:05	VS_SB01_0.2				✓				
ES1406140-002	19-MAR-2014 09:15	VS_SB01_0.5							✓	✓
ES1406140-004	19-MAR-2014 09:30	VS_SB01_1.5	✓		✓		✓	✓		
ES1406140-005	19-MAR-2014 10:15	VS_MW02_0.5				✓				
ES1406140-006	19-MAR-2014 10:25	VS_MW02_1.0							✓	✓
ES1406140-007	19-MAR-2014 10:45	VS_MW01_0.2				✓				
ES1406140-008	19-MAR-2014 11:05	VS_MW01_1.5							✓	✓
ES1406140-009	19-MAR-2014 11:30	VM_MW01_0.5		✓					✓	
ES1406140-010	19-MAR-2014 11:50	VM_MW01_1.5	✓		✓		✓	✓		
ES1406140-011	19-MAR-2014 11:15	VM_MW01_0.15				✓				
ES1406140-013	19-MAR-2014 12:50	VM_MW04_0.3				✓				
ES1406140-014	19-MAR-2014 13:00	VM_MW04_1.0		✓					✓	
ES1406140-015	19-MAR-2014 13:25	VM_MW03_0.2				✓				
ES1406140-016	19-MAR-2014 13:45	VM_MW03_1.5		✓					✓	
ES1406140-019	19-MAR-2014 15:55	VG_MW02_1.5	✓		✓		✓	✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP080 BTEXN	SOIL - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	SOIL - S-04 TRH/BTEXN	SOIL - S-27 TRH/BTEXN/PAH/Phenols/ Metals
ES1406140-002	19-MAR-2014 09:15	VS_SB01_0.5		✓		✓
ES1406140-006	19-MAR-2014 10:25	VS_MW02_1.0		✓		✓
ES1406140-008	19-MAR-2014 11:05	VS_MW01_1.5		✓		✓
ES1406140-009	19-MAR-2014 11:30	VM_MW01_0.5				✓
ES1406140-014	19-MAR-2014 13:00	VM_MW04_1.0				✓
ES1406140-016	19-MAR-2014 13:45	VM_MW03_1.5				✓
ES1406140-017	19-MAR-2014 15:45	VG_MW02_1.0				✓
ES1406140-018	19-MAR-2014 15:45	D01_190314_GP				✓
ES1406140-020	19-MAR-2014 15:00	TRIP SPIKE	✓			



			SOIL - EP080 BTEXN	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-04 TRH/BTEXN	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406140-021	19-MAR-2014 15:00	TRIP BLANK			✓	
ES1406140-022	19-MAR-2014 15:00	TSC	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406140-012	19-MAR-2014 12:40	R01_190314_GP	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





# Certificate of Analysis

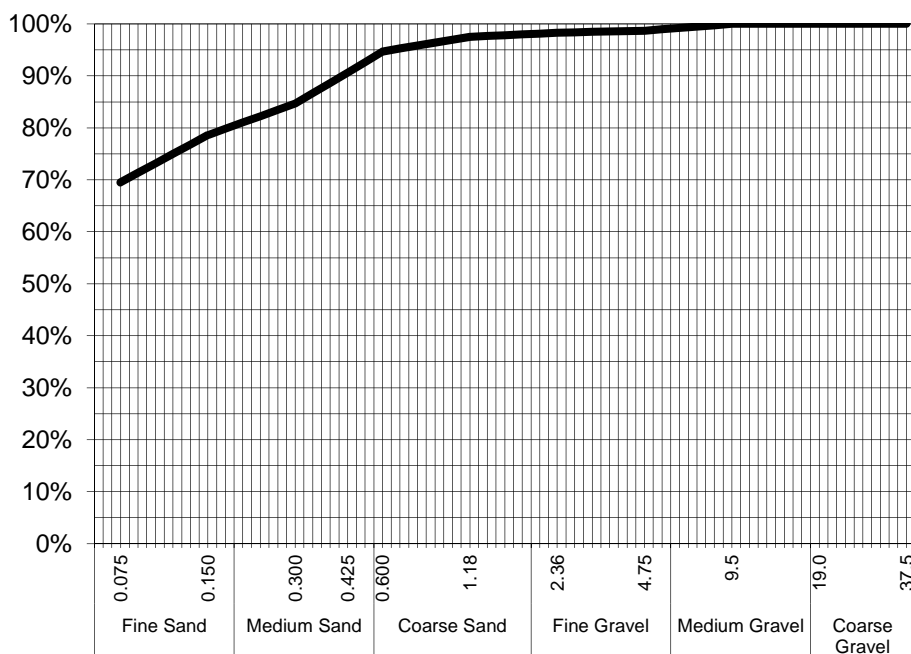
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 31-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 20-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406140-004 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VS\_SB01\_1.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	99%
2.36	98%
1.18	98%
0.600	95%
0.425	91%
0.300	85%
0.150	79%
0.075	70%

Samples analysed as received.

### Sample Comments:

**Analysed:** 28-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**



# Certificate of Analysis

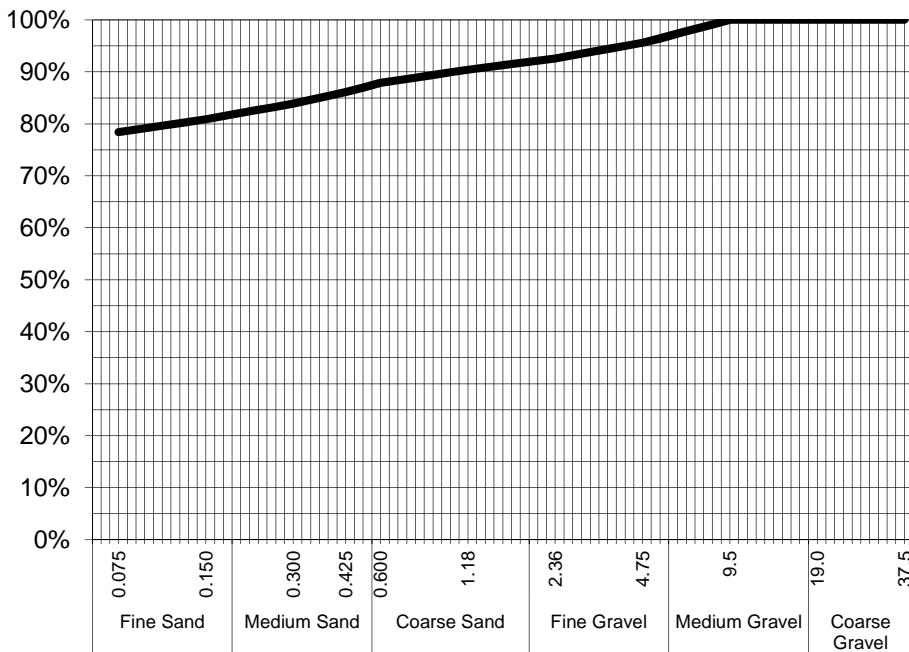
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
ph 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 31-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 20-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406140-010 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VM\_MW01\_1.5

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	96%
2.36	93%
1.18	90%
0.600	88%
0.425	86%
0.300	84%
0.150	81%
0.075	78%

Samples analysed as received.

## Sample Comments:

**Loss on Pretreatment** NA

**Sample Description:** Fines and sand

**Test Method:** AS1289.3.6.3

**Analysed:** 28-Mar-14

**Limit of Reporting:** 1%

**Hydrometer Type** ASTM E100

NATA Accreditation: 825 Site: Newcastle  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

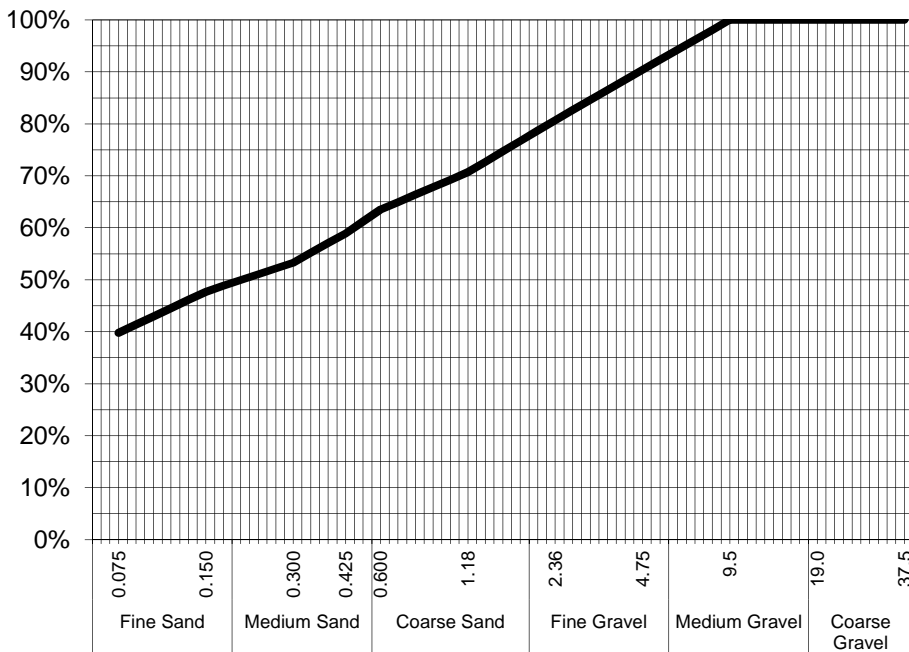
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing      **DATE REPORTED:** 31-Mar-2014  
**COMPANY:** Enviro Resources Management      **DATE RECEIVED:** 20-Mar-2014  
**ADDRESS:** Ground Floor      **REPORT NO:** ES1406140-019 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station      **SAMPLE ID:** VG\_MW02\_1.5

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
19.0	100%
9.5	100%
4.75	90%
2.36	81%
1.18	71%
0.600	64%
0.425	59%
0.300	53%
0.150	48%
0.075	40%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 28-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Fines, sand and gravel

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406141</b>	Page	: 1 of 10
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: DB	No. of samples received	: 8
Site	: ----	No. of samples analysed	: 8
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_0.5	VO_MW03_0.5	VO_MW08_0.5	D01_190314_DB	VO_MW19_0.5
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406141-001	ES1406141-002	ES1406141-003	ES1406141-004	ES1406141-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	3.9	3.9	3.6	3.8	3.5
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	14.2	14.2	28.8	26.4	12.9
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	10	<10	<10	<10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	5	11	23	17	13
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	10	9	7	<5
Manganese	7439-96-5	5	mg/kg	<5	6	5	<5	<5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	15	29	69	52	28
Zinc	7440-66-6	5	mg/kg	<5	10	19	17	<5
Thallium	7440-28-0	5	mg/kg	<5	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_0.5	VO_MW03_0.5	VO_MW08_0.5	D01_190314_DB	VO_MW19_0.5
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406141-001	ES1406141-002	ES1406141-003	ES1406141-004	ES1406141-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_0.5	VO_MW03_0.5	VO_MW08_0.5	D01_190314_DB	VO_MW19_0.5
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406141-001	ES1406141-002	ES1406141-003	ES1406141-004	ES1406141-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	99.4	96.5	97.0	103	94.5
2-Chlorophenol-D4	93951-73-6	0.1	%	98.2	91.4	89.7	96.6	89.3
2,4,6-Tribromophenol	118-79-6	0.1	%	74.2	71.0	86.2	83.7	75.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	91.8	87.2	88.9	88.0	88.3
Anthracene-d10	1719-06-8	0.1	%	95.7	94.0	96.2	95.5	90.6
4-Terphenyl-d14	1718-51-0	0.1	%	86.9	85.8	92.1	90.8	88.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.4	99.7	98.6	93.4	97.0
Toluene-D8	2037-26-5	0.1	%	95.0	92.7	95.9	89.9	90.2
4-Bromofluorobenzene	460-00-4	0.1	%	90.7	88.2	93.6	82.7	85.6



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW05_0.5	VU_MW07_0.5	VU_MW06_0.5	---	---
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1406141-006	ES1406141-007	ES1406141-008	---	---
<b>EA150: Particle Sizing</b>								
+75µm	---	1	%	65	---	---	---	---
+150µm	---	1	%	56	---	---	---	---
+300µm	---	1	%	43	---	---	---	---
+425µm	---	1	%	36	---	---	---	---
+600µm	---	1	%	32	---	---	---	---
+1180µm	---	1	%	28	---	---	---	---
+2.36mm	---	1	%	23	---	---	---	---
+4.75mm	---	1	%	16	---	---	---	---
+9.5mm	---	1	%	14	---	---	---	---
+19.0mm	---	1	%	6	---	---	---	---
+37.5mm	---	1	%	<1	---	---	---	---
+75.0mm	---	1	%	<1	---	---	---	---
<b>EA002 : pH (Soils)</b>								
pH Value	---	0.1	pH Unit	4.4	4.9	---	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	8.8	16.6	11.1	---	---
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	---	1	%	35	---	---	---	---
Sand (>75 µm)	---	1	%	42	---	---	---	---
Gravel (>2mm)	---	1	%	23	---	---	---	---
Cobbles (>6cm)	---	1	%	<1	---	---	---	---
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	---	0.1	meq/100g	1.3	---	---	---	---
Exchangeable Magnesium	---	0.1	meq/100g	1.0	---	---	---	---
Exchangeable Potassium	---	0.1	meq/100g	<0.1	---	---	---	---
Exchangeable Sodium	---	0.1	meq/100g	0.2	---	---	---	---
Cation Exchange Capacity	---	0.1	meq/100g	2.6	---	---	---	---
Exchangeable Aluminium	---	0.1	meq/100g	<0.1	---	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	13	22	10	---	---
Copper	7440-50-8	5	mg/kg	<5	<5	<5	---	---





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW05_0.5	VU_MW07_0.5	VU_MW06_0.5	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406141-006	ES1406141-007	ES1406141-008	----	----
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Lead	7439-92-1	5	mg/kg	<5	<5	<5	----	----
Nickel	7440-02-0	2	mg/kg	<2	4	<2	----	----
Zinc	7440-66-6	5	mg/kg	<5	8	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	0.27	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW05_0.5	VU_MW07_0.5	VU_MW06_0.5	---	---
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1406141-006	ES1406141-007	ES1406141-008	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW05_0.5	VU_MW07_0.5	VU_MW06_0.5	----	----
				19-MAR-2014 15:00	19-MAR-2014 15:00	19-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406141-006	ES1406141-007	ES1406141-008	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	103	86.8	104	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	102	83.7	94.8	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	78.2	66.1	76.0	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.4	74.6	84.4	----	----
Anthracene-d10	1719-06-8	0.1	%	93.2	79.2	90.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	91.0	77.3	87.1	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	101	110	106	----	----
Toluene-D8	2037-26-5	0.1	%	102	111	102	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	104	94.8	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406141</b>	Page	: 1 of 12
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: DB	No. of samples received	: 8
Order number	: 0237747	No. of samples analysed	: 8
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Hamish Murray	Supervisor - Soils	Sydney Inorganics
Kim McCabe	Senior Inorganic Chemist	Newcastle - Inorganics
Pabi Subba	Senior Organic Chemist	Brisbane Acid Sulphate Soils
Shobhna Chandra	Metals Coordinator	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3358674)</b>									
ES1406135-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.8	7.0	2.6	0% - 20%
ES1406139-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.4	4.5	0.0	0% - 20%
<b>EA002 : pH (Soils) (QC Lot: 3358675)</b>									
ES1406141-005	VO_MW19_0.5	EA002: pH Value	----	0.1	pH Unit	3.5	3.5	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3359833)</b>									
ES1406140-014	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.5	17.4	4.8	0% - 50%
ES1406141-007	VU_MW07_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	16.6	17.4	4.9	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3355019)</b>									
ES1406137-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.3	7.2	2.3	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.0	2.0	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	10.1	10.0	1.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.8	0.8	0.0	0% - 20%
ES1406284-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.5	1.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.3	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367251)</b>									
ES1406141-001	VO_MW02_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	23.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	24	44.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367251) - continued</b>									
ES1406141-001	VO_MW02_0.5	EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1406141-001	VO_MW02_0.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	11	30.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3367252)</b>									
ES1406141-001	VO_MW02_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406141-001	VO_MW02_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3358961)</b>									
EM1402523-002	Anonymous	EP003: Total Organic Carbon	----	0.02	%	3.81	3.82	0.4	0% - 20%
ES1406140-004	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.16	0.13	19.1	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355456)</b>									
ES1406137-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406141-004	D01_190314_DB	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355456) - continued</b>									
ES1406141-004	D01_190314_DB	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355456)</b>									
ES1406137-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406141-004	D01_190314_DB	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Page : 7 of 12  
 Work Order : ES1406141  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3355404) - continued</b>									
ES1406141-001	VO_MW02_0.5	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3355019)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	112	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	112	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	110	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	122	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	118	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	118	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	73.1	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	91.6	70	105	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3358961)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	104	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355456)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	107	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	104	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	77.1	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	88.7	69	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355456) - continued</b>									
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	82.4	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	86.5	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	87.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	77.7	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	82.4	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.9	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355456)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	99.7	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	97.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.8	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.0	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	93.2	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	99.3	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	83.4	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	93.8	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.8	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	89.9	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.7	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.6	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355455)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	104	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	109	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355455)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	106	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	104	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	112	63	131	
<b>EP080: BTEXN (QCLot: 3355404)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.8	62	116	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3355404) - continued</b>								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	81.3	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	79.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	82.7	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.7	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>							
ES1406141-001	VO_MW02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.3	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	97.9	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	103	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>							
ES1406141-001	VO_MW02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	87.8	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355456)</b>							
ES1406137-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	74.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	42.8	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355456)</b>							
ES1406137-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>							
ES1406137-002	Anonymous	EP080: C6 - C9 Fraction	---	32.5 mg/kg	80.3	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355455)</b>							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355455) - continued</b>								
ES1406137-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.9	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	80.7	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>								
ES1406137-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	83.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355455)</b>								
ES1406137-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.4	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.2	52	132	
<b>EP080: BTEXN (QCLot: 3355404)</b>								
ES1406137-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.3	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	80.4	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	83.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3355404)</b>											
ES1406137-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	84.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	85.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.3	----	70	130	----	----	
EP080: Naphthalene	91-20-3	2.5 mg/kg	80.4	----	70	130	----	----			



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355455)</b>										
ES1406137-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.1	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	78.9	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	80.7	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355455)</b>										
ES1406137-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	98.4	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	77.3	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	74.2	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355456)</b>										
ES1406137-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.8	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	74.8	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.3	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	42.8	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355456)</b>										
ES1406137-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	101	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>										
ES1406141-001	VO_MW02_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.3	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	97.9	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	103	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>										
ES1406141-001	VO_MW02_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	87.8	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406141</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: DB	No. of samples received	: 8
Order number	: 0237747	No. of samples analysed	: 8
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5	VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5	19-MAR-2014	26-MAR-2014	26-MAR-2014	✓	26-MAR-2014	26-MAR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5	VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	----	----	----	26-MAR-2014	02-APR-2014	✓
<b>EA150: Particle Sizing</b>								
<b>Snap Lock Bag (EA150)</b> VU_MW05_0.5		19-MAR-2014	---	15-SEP-2014	----	31-MAR-2014	24-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
<b>Snap Lock Bag (EA150)</b> VU_MW05_0.5		19-MAR-2014	---	15-SEP-2014	----	31-MAR-2014	24-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>								
<b>Soil Glass Jar - Unpreserved (ED007)</b> VU_MW05_0.5		19-MAR-2014	26-MAR-2014	16-APR-2014	✓	26-MAR-2014	16-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5	VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	31-MAR-2014	15-SEP-2014	✓	01-APR-2014	15-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5	VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	31-MAR-2014	16-APR-2014	✓	02-APR-2014	16-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP003: Total Organic Carbon (TOC) in Soil</b>							
<b>Pulp Bag (EP003)</b> VU_MW05_0.5	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	27-MAR-2014	16-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5 VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	27-MAR-2014	02-APR-2014	✓	27-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5 VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	27-MAR-2014	02-APR-2014	✓	27-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5 VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	27-MAR-2014	02-APR-2014	✓	27-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5 VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW02_0.5, VO_MW08_0.5, VO_MW19_0.5, VU_MW07_0.5 VO_MW03_0.5, D01_190314_DB, VU_MW05_0.5, VU_MW06_0.5	19-MAR-2014	26-MAR-2014	02-APR-2014	✓	26-MAR-2014	02-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	3	24	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Page : 6 of 7  
Work Order : ES1406141  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406141**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : DB</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 20-MAR-2014</b></p> <p><b>Client Requested Due Date : 02-APR-2014</b></p>	<p><b>Issue Date : 21-MAR-2014 17:30</b></p> <p><b>Scheduled Reporting Date : <b>02-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 4 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.9°C - Ice present</b></p> <p><b>No. of samples received : 8</b></p> <p><b>No. of samples analysed : 8</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane.**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150* Particle Size Analysis by Sieving	SOIL - ED007 Def CEC / Exchangeable Cations (ED007)	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl.	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1406141-001	19-MAR-2014 15:00	VO_MW02_0.5	✓	✓			✓		✓	✓
ES1406141-002	19-MAR-2014 15:00	VO_MW03_0.5	✓	✓			✓		✓	✓
ES1406141-003	19-MAR-2014 15:00	VO_MW08_0.5	✓	✓			✓		✓	✓
ES1406141-004	19-MAR-2014 15:00	D01_190314_DB	✓	✓			✓		✓	✓
ES1406141-005	19-MAR-2014 15:00	VO_MW19_0.5	✓	✓			✓		✓	✓
ES1406141-006	19-MAR-2014 15:00	VU_MW05_0.5	✓		✓	✓		✓		
ES1406141-007	19-MAR-2014 15:00	VU_MW07_0.5	✓							

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406141-006	19-MAR-2014 15:00	VU_MW05_0.5	✓
ES1406141-007	19-MAR-2014 15:00	VU_MW07_0.5	✓
ES1406141-008	19-MAR-2014 15:00	VU_MW06_0.5	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTab )	Email	john.ewing@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTab )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

DADELAIDE 21 Burma Road P.O. Box 5A 5095  
Ph: 08 8359 0850 E: dade@als.com.au

CHRISTIANE 32 Sheild Street Sheildford QLD 4053  
Ph: 07 3248 7222 E: samples.brisbane@als.com.au

QUEENSLAND 44 Callenbach Drive Clinton QLD 4680  
Ph: 07 7471 5000 E: glouster@als.com.au

DNACQAY 75 Harbour Road Mackay QLD 4740  
Ph: 07 4544 0177 E: mackay@als.com.au

DNE-BOURNE 2-4 Westall Road Springvale VIC 3171  
Ph: 03 8549 9800 E: samples.melbourne@als.com.au

DMUDGE 27 Sydney Road Mudgee NSW 2850  
Ph: 02 8572 6735 E: mudgee.mal@als.com.au

DNEWCASTLE 5 Ross Gum Road Warabrook NSW 2304  
Ph: 02 4980 9433 E: samples.newcastle@als.com.au

DNOVIRA 413 Coory Place North Nova NSW 2511  
Ph: 024433 2063 E: nova@als.com.au

DWOLLONGABONG 60 Kemmy Street Wollongabong NSW 2509  
Ph: 02 4225 2125 E: wollongabong@als.com.au

OSYDNEY 277-280 Woodpark Road Emufield NSW 2164  
Ph: 02 9784 8555 E: sydney@als.com.au

UTOMNSVILLE 14-15 Deanna Court Gungahlin ACT 2919  
Ph: 07 4796 0600 E: townsville.environmental@als.com.au

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** *Dane Brookes*  
**COC emailed to ALS? ( YES / NO )**

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0407795671  
**EDD FORMAT (or default):**  
 Email Reports to (will default to PM if no other addresses are listed): symphony.dellanorhi@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.dellanorhi@erm.com

**FOR LABORATORY USE ONLY (circle)**  
 Custom Sample Limit?  Yes  No  
 Collected by ALS or ALS subcontractors?  Yes  No  
 Random Sample Temperature on Receipt?  Yes  No  
 Other comment:  Yes  No

**RECEIVED BY:** *SOPHIA AS*  
**DATE/TIME:** 20/3/14 19:00  
**RELINQUISHED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information							
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.					
1	VO-MW02-0.5	19/3/14	S	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
2	VO-MW03-0.5		S		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3	VO-MW08-0.5		S		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4	VOI-190314-DB		S		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	VO-MW19-0.5		S		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	VU-MW05-0.5		S	2 Jars, 1 bag	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
7	VU-MW07-0.5		S	1 Jar	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8	VU-MW06-0.5		S		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<b>TOTAL</b>																							

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Fo  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

Environmental Division  
 Sydney  
 Work Order  
**ES1406141**



Telephone : +61-2-8784 8555

# Certificate of Analysis

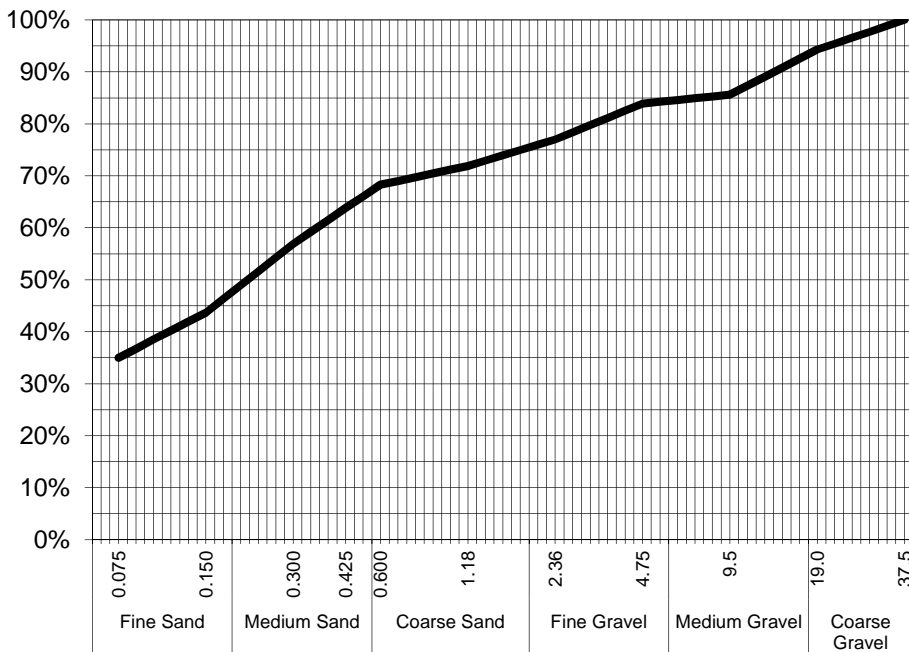
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 31-Mar-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 20-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406141-006 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VU\_MW05\_0.5

**Particle Size Distribution**



Particle Size (mm)	Percent Passing
37.5	100%
19.0	94%
9.5	86%
4.75	84%
2.36	77%
1.18	72%
0.600	68%
0.425	64%
0.300	57%
0.150	44%
0.075	35%

Samples analysed as received.

**Sample Comments:**

**Analysed:** 28-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand, fines and gravel

**Test Method:** AS1289.3.6.3

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406142</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 20-MAR-2014 <b>Issue Date</b> : 28-MAR-2014  <b>No. of samples received</b> : 4 <b>No. of samples analysed</b> : 4
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW08_1.5	VU_MW08_3.8	VU_MW04_8.8	VU_MW09_3.9	----	
				19-MAR-2014 09:30	19-MAR-2014 09:30	19-MAR-2014 12:30	19-MAR-2014 15:00	----	
				ES1406142-001	ES1406142-002	ES1406142-003	ES1406142-004	----	
Compound	CAS Number	LOR	Unit						
<b>EA055: Moisture Content</b>									
Moisture Content (dried @ 103°C)	----	1.0	%	22.4	19.8	16.6	11.0	----	
<b>EG005T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----	
Chromium	7440-47-3	2	mg/kg	4	3	7	4	----	
Copper	7440-50-8	5	mg/kg	<5	6	27	6	----	
Lead	7439-92-1	5	mg/kg	44	6	6	24	----	
Nickel	7440-02-0	2	mg/kg	<2	<2	12	3	----	
Zinc	7440-66-6	5	mg/kg	<5	10	55	17	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	----	
<b>EP075(SIM)A: Phenolic Compounds</b>									
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----	
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW08_1.5	VU_MW08_3.8	VU_MW04_8.8	VU_MW09_3.9	----
				19-MAR-2014 09:30	19-MAR-2014 09:30	19-MAR-2014 12:30	19-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406142-001	ES1406142-002	ES1406142-003	ES1406142-004	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW08_1.5	VU_MW08_3.8	VU_MW04_8.8	VU_MW09_3.9	----
				19-MAR-2014 09:30	19-MAR-2014 09:30	19-MAR-2014 12:30	19-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406142-001	ES1406142-002	ES1406142-003	ES1406142-004	----
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	98.8	90.4	101	105	----
2-Chlorophenol-D4	93951-73-6	0.1	%	90.3	85.5	93.3	99.4	----
2.4.6-Tribromophenol	118-79-6	0.1	%	65.2	69.5	67.4	68.1	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.2	81.1	79.2	80.2	----
Anthracene-d10	1719-06-8	0.1	%	84.0	85.9	83.1	87.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.8	92.2	95.8	95.2	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	125	122	115	114	----
Toluene-D8	2037-26-5	0.1	%	108	113	109	97.3	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	112	120	103	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406142</b>	<b>Page</b>	: 1 of 10
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 20-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 28-MAR-2014
<b>Sampler</b>	: KB	<b>No. of samples received</b>	: 4
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 4
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Pabi Subba

#### Position

Senior Spectroscopist  
Senior Organic Chemist

#### Accreditation Category

Sydney Inorganics  
Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3356822)</b>									
ES1406142-002	VU_MW08_3.8	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.8	18.8	5.4	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3359910)</b>									
ES1406559-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	20	14.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	11	20.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	12	8.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	20	27.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	17	16	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3359911)</b>									
ES1406559-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355326)</b>									
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1405849-035	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355326)</b>									
ES1405849-022	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.1	1.1	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.3	2.6	23.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.0	2.4	21.2	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.1	0.8	24.2	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.2	1.0	24.4	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.8	1.5	18.5	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.3	1.1	18.8	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1.0	0.8	20.8	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	1.5	1.2	22.9	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	16.0	13.2	19.2	0% - 20%
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.8	1.5	17.3	No Limit		
ES1405849-035	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354737)</b>									
ES1406135-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354737) - continued</b>									
ES1406135-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3355325)</b>									
ES1405849-022	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	140	110	17.2	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1405849-035	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354737)</b>									
ES1406135-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406135-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3355325)</b>									
ES1405849-022	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	160	130	21.5	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	140	130	8.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1405849-035	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3354737)</b>									
ES1406135-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406135-011	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359910)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	117	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	114	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	118	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359911)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.0	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	104	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	108	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.1	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	81.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	79.8	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	79.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	81.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	94.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.9	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	97.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	98.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	106	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	98.2	70	118	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326) - continued</b>								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	107	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.4	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	96.4	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.6	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	107	72.4	114
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354737)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	114	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	117	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	101	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	100	64	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354737)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	108	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	111	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.7	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	85.8	63	131
<b>EP080: BTEXN (QCLot: 3354737)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	102	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	106	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	107	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	111	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.0	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359910)</b>							
ES1406559-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359910) - continued</b>								
ES1406559-001	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	112	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	106	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359911)</b>								
ES1406559-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	101	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>								
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.3	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	75.1	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.4	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>								
ES1405849-022	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.1	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354737)</b>								
ES1406135-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	114	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>								
ES1405849-022	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.8	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.1	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354737)</b>								
ES1406135-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.6	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>								
ES1405849-022	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.7	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.3	52	132	
<b>EP080: BTEXN (QCLot: 3354737)</b>								
ES1406135-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.9	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	97.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	97.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.0	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	73.7	70	130			



### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354737)</b>											
ES1406135-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	114	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354737)</b>											
ES1406135-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.6	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354737)</b>											
ES1406135-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	97.6	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	97.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.0	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.7	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>											
ES1405849-022	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.8	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.1	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>											
ES1405849-022	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.7	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.3	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>											
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.3	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	75.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.4	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>											
ES1405849-022	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.1	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.8	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359910)</b>											
ES1406559-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	70	130	----	----	

Page : 10 of 10  
 Work Order : ES1406142  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: SOIL

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
<b>EG005T: Total Metals by ICP-AES (QCLot: 3359910) - continued</b>										
ES1406559-001	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	106	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	105	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3359911)</b>										
ES1406559-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	101	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406142</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-MAR-2014
C-O-C number	: ----	Issue Date	: 28-MAR-2014
Sampler	: KB	No. of samples received	: 4
Order number	: 0237747	No. of samples analysed	: 4
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	----	----	----	25-MAR-2014	02-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	26-MAR-2014	15-SEP-2014	✓	27-MAR-2014	15-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	26-MAR-2014	16-APR-2014	✓	27-MAR-2014	16-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP071) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	25-MAR-2014	02-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	25-MAR-2014	02-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	25-MAR-2014	02-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	25-MAR-2014	02-APR-2014	✓	27-MAR-2014	02-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW08_1.5, VU_MW04_8.8,	VU_MW08_3.8, VU_MW09_3.9	19-MAR-2014	25-MAR-2014	02-APR-2014	✓	27-MAR-2014	02-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.





---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406142</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 2
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: KB		

#### Dates

Date Samples Received	: 20-MAR-2014	Issue Date	: 21-MAR-2014 16:50
Client Requested Due Date	: 28-MAR-2014	Scheduled Reporting Date	: <b>28-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.9°C - Ice present
No. of coolers/boxes	: 4 HARD	No. of samples received	: 4
Security Seal	: Intact.	No. of samples analysed	: 4

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1406142-001	19-MAR-2014 09:30	VU_MW08_1.5	✓
ES1406142-002	19-MAR-2014 09:30	VU_MW08_3.8	✓
ES1406142-003	19-MAR-2014 12:30	VU_MW04_8.8	✓
ES1406142-004	19-MAR-2014 15:00	VU_MW09_3.9	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406275</b>	Page	: 1 of 14
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: S.BROOKES	No. of samples received	: 9
Site	: ----	No. of samples analysed	: 9
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW13_0.2	VU_MW13_1.0	VU_SB02_0.2	VU_SB02_1.0	VO_MW14_0.2
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406275-001	ES1406275-002	ES1406275-003	ES1406275-004	ES1406275-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	4.3	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	17.4	----	24.6	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Sample weight (dry)	----	0.01	g	823	----	422	----	441
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.823	----	0.422	----	0.441
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	----	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	0.2	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	0.9	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.1	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.3	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	22	----	10	----
Copper	7440-50-8	5	mg/kg	----	<5	----	<5	----
Lead	7439-92-1	5	mg/kg	----	<5	----	6	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	<5	----	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VU_MW13_0.2	VU_MW13_1.0	VU_SB02_0.2	VU_SB02_1.0	VO_MW14_0.2
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
				ES1406275-001	ES1406275-002	ES1406275-003	ES1406275-004	ES1406275-005
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW13_0.2	VU_MW13_1.0	VU_SB02_0.2	VU_SB02_1.0	VO_MW14_0.2
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406275-001	ES1406275-002	ES1406275-003	ES1406275-004	ES1406275-005
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>82.6</b>	----	<b>89.5</b>	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	<b>88.6</b>	----	<b>89.9</b>	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	<b>107</b>	----	<b>97.2</b>	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	<b>96.4</b>	----	<b>97.5</b>	----
Anthracene-d10	1719-06-8	0.1	%	----	<b>95.9</b>	----	<b>96.4</b>	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	<b>94.2</b>	----	<b>95.5</b>	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	<b>96.8</b>	----	<b>102</b>	----



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW13_0.2	VU_MW13_1.0	VU_SB02_0.2	VU_SB02_1.0	VO_MW14_0.2
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406275-001	ES1406275-002	ES1406275-003	ES1406275-004	ES1406275-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	----	92.4	----	94.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	91.0	----	93.9	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW14_0.5	VO_MW15_0.2	VO_MW15_0.5 VO_MW15_1.0	----	----
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	----	----
				ES1406275-006	ES1406275-007	ES1406275-008	----	----
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	<b>6.9</b>	----	<b>13.0</b>	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	<b>No</b>	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	<b>417</b>	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	<b>C.OWLER</b>	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	<b>0.417</b>	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	----	<b>No</b>	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	----	----
Barium	7440-39-3	10	mg/kg	<10	----	<10	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	----	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	<b>3</b>	----	<b>8</b>	----	----
Cobalt	7440-48-4	2	mg/kg	<2	----	<2	----	----
Copper	7440-50-8	5	mg/kg	<5	----	<5	----	----
Lead	7439-92-1	5	mg/kg	<5	----	<5	----	----
Manganese	7439-96-5	5	mg/kg	<5	----	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	<2	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	<2	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	<5	----	----
Vanadium	7440-62-2	5	mg/kg	<b>9</b>	----	<b>14</b>	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	<5	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	<5	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW14_0.5	VO_MW15_0.2	VO_MW15_0.5 VO_MW15_1.0	----	----
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	----	----
				ES1406275-006	ES1406275-007	ES1406275-008	----	----
Compound	CAS Number	LOR	Unit					
<b>EG035T: Total Recoverable Mercury by FIMS - Continued</b>								
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW14_0.5	VO_MW15_0.2	VO_MW15_0.5 VO_MW15_1.0	----	----
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406275-006	ES1406275-007	ES1406275-008	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	1.2	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	89.5	----	72.9	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	96.2	----	76.7	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	116	----	87.4	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	104	----	81.5	----	----
Anthracene-d10	1719-06-8	0.1	%	102	----	80.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	101	----	79.3	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VO_MW14_0.5	VO_MW15_0.2	VO_MW15_0.5 VO_MW15_1.0	----	----
20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	----	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406275-006	ES1406275-007	ES1406275-008	----	----
----------	------------	-----	------	---------------	---------------	---------------	------	------

### EP075(SIM)T: PAH Surrogates - Continued

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	81.2	----	101	----	----
Toluene-D8	2037-26-5	0.1	%	101	----	96.2	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.4	----	92.5	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_SB

---

---

---

---

Client sampling date / time

20-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406275-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_SB

---

---

---

---

Client sampling date / time

20-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406275-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates





## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>R01_200314_SB</b>	----	----	----	----
----------------------	------	------	------	------

Client sampling date / time

20-MAR-2014 15:00	----	----	----	----
-------------------	------	------	------	------

Compound	CAS Number	LOR	Unit	ES1406275-009	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EP075(SIM)S: Phenolic Compound Surrogates - Continued

Phenol-d6	13127-88-3	0.1	%	30.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	62.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	73.4	----	----	----	----

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	72.1	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	72.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	68.0	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	100	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VU_MW13_0.2 - 20-MAR-2014 15:00	Pale yellow-brown clay soil with some small red rocks plus a trace of vegetation
EA200: Description	VU_SB02_0.2 - 20-MAR-2014 15:00	Mid grey soil with some small grey rocks plus a trace of vegetation
EA200: Description	VO_MW14_0.2 - 20-MAR-2014 15:00	Pale yellow-brown clay soil with some small red rocks plus a trace of vegetation
EA200: Description	VO_MW15_0.2 - 20-MAR-2014 15:00	Mid grey clay soil plus a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406275</b>	Page	: 1 of 17
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: S.BROOKES	No. of samples received	: 9
Order number	: 0237747	No. of samples analysed	: 9
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Edwandy Fadjjar	Organic Coordinator	Newcastle - Asbestos
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Organics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3360853)</b>									
ES1406063-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.3	6.2	2.2	0% - 20%
ES1406282-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.4	4.0	9.5	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3361300)</b>									
ES1405849-040	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.5	6.8	4.9	No Limit
ES1406275-006	VO_MW14_0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.9	6.7	3.4	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3355019)</b>									
ES1406137-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	7.3	7.2	2.3	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.0	2.0	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	10.1	10.0	1.4	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.8	0.8	0.0	0% - 20%
ES1406284-002	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.5	1.5	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.3	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3361222)</b>									
EB1406417-039	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	240	240	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	25	33	29.2	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	12	30.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	17	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	33	37	12.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	8	15.4	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	30	28	8.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	24	31	25.8	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
ES1406001-004	Anonymous	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3361222) - continued</b>									
ES1406001-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3361223)</b>									
EB1406417-039	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406001-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828) - continued</b>									
ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828) - continued</b>										
ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354764)</b>										
ES1406275-002	VU_MW13_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406284-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354764)</b>										
ES1406275-002	VU_MW13_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406284-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406275-008	VO_MW15_0.5 VO_MW15_1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3354764)</b>										
ES1406275-002	VU_MW13_1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406284-005	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3354764) - continued</b>										
ES1406284-005	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3358884)</b>										
ES1404526-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
ES1406274-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.005	0.005	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.026	0.024	6.6	No Limit			
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354821)</b>										
ES1406140-012	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1406281-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406278-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406278-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1406278-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	

Page : 8 of 17  
 Work Order : ES1406275  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

*Laboratory Duplicate (DUP) Report*

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
<b>EP080: BTEXN (QC Lot: 3361095) - continued</b>									
ES1406278-005	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3355019)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3361222)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	104	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	108	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	105	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	109	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	114	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	114	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	74.3	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3361223)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.3	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.6	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.0	73	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828) - continued</b>									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.6	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	95.0	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	91.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	103	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	108	63	131	
<b>EP080: BTEXN (QCLot: 3354764)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.9	58	118	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3354764) - continued</b>									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	80.2	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	65.6	62	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	108	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.1	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	40.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	71.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	67.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	82.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	81.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	78.0	63	119	
		1	µg/L	<1.0	----	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	87.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152) - continued</b>									
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	84.9	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	69.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	78.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	87.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	87.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	86.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	89.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	77.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	91.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	99.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	86.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	81.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	83.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	101	59	129	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151) - continued</b>									
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	90.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355151)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.9	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	106	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.1	75	127	
<b>EP080: BTEXN (QCLot: 3361095)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	103	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.6	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3361222)</b>								
EB1406417-039	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	120	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	105	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	101	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3361223)</b>								
EB1406417-039	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.7	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>								
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>								
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>								
ES1406275-002	VU_MW13_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>								
ES1406275-002	VU_MW13_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	52	132	
<b>EP080: BTEXN (QCLot: 3354764)</b>								
ES1406275-002	VU_MW13_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.6	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.5	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>							
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884) - continued</b>								
ES1406004-018	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	101	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>								
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	70	130	
<b>EP080: BTEXN (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	94.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	110	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>											
ES1406275-002	VU_MW13_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>											
ES1406275-002	VU_MW13_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.7	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354764)</b>											
ES1406275-002	VU_MW13_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	72.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.5	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>											



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827) - continued</b>										
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>										
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>										
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3361222)</b>										
EB1406417-039	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	120	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	105	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	103	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3361223)</b>										
EB1406417-039	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.7	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>										
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>										
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	103	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884) - continued</b>										
ES1406004-018	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	94.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	92.1	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406275</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: S.BROOKES	No. of samples received	: 9
Order number	: 0237747	No. of samples analysed	: 9
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW13_1.0	20-MAR-2014	27-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VU_MW13_1.0, VU_SB02_1.0, VO_MW14_0.5, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	----	----	----	27-MAR-2014	03-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
Snap Lock Bag (EA200) VU_MW13_0.2, VU_SB02_0.2, VO_MW14_0.2, VO_MW15_0.2	20-MAR-2014	---	16-SEP-2014	----	28-MAR-2014	24-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VU_MW13_1.0	20-MAR-2014	26-MAR-2014	17-APR-2014	✓	26-MAR-2014	17-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VU_MW13_1.0, VU_SB02_1.0, VO_MW14_0.5, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	27-MAR-2014	16-SEP-2014	✓	28-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VU_MW13_1.0, VU_SB02_1.0, VO_MW14_0.5, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	27-MAR-2014	17-APR-2014	✓	31-MAR-2014	17-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VU_MW13_1.0, VU_SB02_1.0, VO_MW14_0.5, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW13_1.0, VU_SB02_1.0, VO_MW14_0.5, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW13_1.0, VO_MW14_0.5,	VU_SB02_1.0, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW13_1.0, VO_MW14_0.5,	VU_SB02_1.0, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	28-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW13_1.0, VO_MW14_0.5,	VU_SB02_1.0, VO_MW15_0.5 - VO_MW15_1.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	28-MAR-2014	03-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_200314_SB		20-MAR-2014	26-MAR-2014	16-SEP-2014	✓	27-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_200314_SB		20-MAR-2014	----	----	----	24-MAR-2014	17-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Amber Glass Bottle - Unpreserved (EP071) R01_200314_SB		20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_SB		20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_SB		20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_SB		20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_SB		20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1406275</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : S.BROOKES	<b>Page</b> : 1 of 3  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 21-MAR-2014 <b>Client Requested Due Date</b> : 31-MAR-2014	<b>Issue Date</b> : 24-MAR-2014 08:51 <b>Scheduled Reporting Date</b> : <b>31-MAR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 1 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 2.7°C - Ice present <b>No. of samples received</b> : 9 <b>No. of samples analysed</b> : 9
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES1406275-008 : 20-MAR-2014 15:00 : VO\_MW15\_0.5 - VO\_MW15\_1.0

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - Incl. Digestion)	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406275-001	20-MAR-2014 15:00	VU_MW13_0.2		✓					
ES1406275-002	20-MAR-2014 15:00	VU_MW13_1.0	✓		✓				✓
ES1406275-003	20-MAR-2014 15:00	VU_SB02_0.2		✓					
ES1406275-004	20-MAR-2014 15:00	VU_SB02_1.0							✓
ES1406275-005	20-MAR-2014 15:00	VO_MW14_0.2		✓					
ES1406275-006	20-MAR-2014 15:00	VO_MW14_0.5				✓	✓	✓	
ES1406275-007	20-MAR-2014 15:00	VO_MW15_0.2		✓					
ES1406275-008	20-MAR-2014 15:00	VO_MW15_0.5 VO_MW15				✓	✓	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406275-009	20-MAR-2014 15:00	R01_200314_SB	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406276</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KATIE BRISTOW <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 31-MAR-2014  <b>No. of samples received</b> : 2 <b>No. of samples analysed</b> : 1
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VJ\_MW05\_4.5

---

---

---

---

Client sampling date / time

20-MAR-2014 09:30

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406276-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	17.1	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

### EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Barium	7440-39-3	10	mg/kg	<10	---	---	---	---
Beryllium	7440-41-7	1	mg/kg	<1	---	---	---	---
Boron	7440-42-8	50	mg/kg	<50	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	5	---	---	---	---
Cobalt	7440-48-4	2	mg/kg	<2	---	---	---	---
Copper	7440-50-8	5	mg/kg	<5	---	---	---	---
Lead	7439-92-1	5	mg/kg	<5	---	---	---	---
Manganese	7439-96-5	5	mg/kg	<5	---	---	---	---
Molybdenum	7439-98-7	2	mg/kg	<2	---	---	---	---
Nickel	7440-02-0	2	mg/kg	<2	---	---	---	---
Selenium	7782-49-2	5	mg/kg	<5	---	---	---	---
Vanadium	7440-62-2	5	mg/kg	<5	---	---	---	---
Zinc	7440-66-6	5	mg/kg	<5	---	---	---	---
Thallium	7440-28-0	5	mg/kg	<5	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
---------	-----------	-----	-------	------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VJ\_MW05\_4.5

---

---

---

---

Client sampling date / time

20-MAR-2014 09:30

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406276-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	---	---	---	---
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	---	---	---	---
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	---	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	10	mg/kg	<10	---	---	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	---	---	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	---	---	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	10	mg/kg	<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	---	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	---	---	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	---	---	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VJ\_MW05\_4.5

---

---

---

---

Client sampling date / time

20-MAR-2014 09:30

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406276-001	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	---	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	---	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	---	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	---	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	---	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	---	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.4	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	91.3	---	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	108	---	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	100	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	89.0	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	97.1	---	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	113	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	109	---	---	---	---



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406276</b>	Page	: 1 of 11
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 21-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 31-MAR-2014
<b>Sampler</b>	: KATIE BRISTOW	<b>No. of samples received</b>	: 2
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 1
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3361300)</b>									
ES1405849-040	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.5	6.8	4.9	No Limit
ES1406275-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.9	6.7	3.4	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3363545)</b>									
ES1406063-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	22	0.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	11	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	398	387	2.7	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	50	52	4.3	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	13	14	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406306-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	2	2	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	240	250	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	18	20	10.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	28	20	33.8	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	21	24	10.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	41	50	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	25	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	338	303	10.7	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	40	40	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	96	104	8.6	0% - 20%
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363546)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363546) - continued</b>									
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406306-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406275-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828) - continued</b>									
ES1406001-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406275-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354787)</b>									
ES1406138-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406282-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354827)</b>									
ES1406001-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406275-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354787)</b>									
ES1406138-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406282-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354827)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354827) - continued</b>									
ES1406001-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406275-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3354787)</b>									
ES1406138-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406282-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	100	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	105	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.4	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	100	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	103	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	101	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.7	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	108	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	71.8	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	102	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.6	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.6	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	95.0	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113	
EP075(SIM): Dibenz(a,h.)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	91.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354787)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	89.4	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354787)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.9	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	103	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	108	63	131	
<b>EP080: BTEXN (QCLot: 3354787)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	97.4	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.5	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	95.0	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	77.5	62	138	

**Matrix Spike (MS) Report**



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
					Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>							
ES1406063-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	82.0	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	93.5	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>							
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>							
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>							
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354787)</b>							
ES1406138-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.5	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>							
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354787)</b>							
ES1406138-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	73.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>							
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	52	132
<b>EP080: BTEXN (QCLot: 3354787)</b>							
ES1406138-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.8	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	79.4	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.0	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3354787) - continued</b>							
ES1406138-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	79.5	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.1	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354787)</b>											
ES1406138-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.5	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354787)</b>											
ES1406138-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	73.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354787)</b>											
ES1406138-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	79.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.0	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	79.5	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.9	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	79.1	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>											
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>											
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>											
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	----	20	130	----	----	





Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>										
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>										
ES1406063-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	82.0	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	102	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	93.5	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>										
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406276</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: KATIE BRISTOW	No. of samples received	: 2
Order number	: 0237747	No. of samples analysed	: 1
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VJ_MW05_4.5	20-MAR-2014	----	----	----	27-MAR-2014	03-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VJ_MW05_4.5	20-MAR-2014	28-MAR-2014	16-SEP-2014	✓	31-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VJ_MW05_4.5	20-MAR-2014	28-MAR-2014	17-APR-2014	✓	31-MAR-2014	17-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VJ_MW05_4.5	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VJ_MW05_4.5	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VJ_MW05_4.5	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VJ_MW05_4.5	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP080) VJ_MW05_4.5	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1406276</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: KATIE BRISTOW</b>		

#### Dates

Date Samples Received	: 21-MAR-2014	Issue Date	: 22-MAR-2014 10:09
Client Requested Due Date	: 31-MAR-2014	Scheduled Reporting Date	: <b>31-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.7°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 2
Security Seal	: Intact.	No. of samples analysed	: 1

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL	No analysis requested	SOIL - EG005T (solids)	Total Metals by ICP-AES	SOIL - S-03	15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24	TRH/TEXNIPAH + Phenols
ES1406276-001	20-MAR-2014 09:30	VJ_MW05_4.5			✓		✓		✓	
ES1406276-002	20-MAR-2014 09:30	VJ_MW06_6.0	✓							

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406277</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : WG <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 28-MAR-2014  <b>No. of samples received</b> : 4 <b>No. of samples analysed</b> : 4
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW14_3.3-3.7	VG_MW04_8.5	D01_21.3.14_WG	---	---
				21-MAR-2014 08:40	21-MAR-2014 11:50	21-MAR-2014 08:40	---	---
				ES1406277-001	ES1406277-002	ES1406277-003	---	---
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	12.1	5.2	12.2	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	---	---
Chromium	7440-47-3	2	mg/kg	3	3	5	---	---
Copper	7440-50-8	5	mg/kg	<5	8	<5	---	---
Lead	7439-92-1	5	mg/kg	<5	5	<5	---	---
Nickel	7440-02-0	2	mg/kg	<2	10	2	---	---
Zinc	7440-66-6	5	mg/kg	48	80	51	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time	VU_MW14_3.3-3.7	VG_MW04_8.5	D01_21.3.14_WG	---	---
21-MAR-2014 08:40			21-MAR-2014 08:40	---	---
	ES1406277-001	ES1406277-002	ES1406277-003	---	---

Compound	CAS Number	LOR	Unit	ES1406277-001	ES1406277-002	ES1406277-003	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW14_3.3-3.7	VG_MW04_8.5	D01_21.3.14_WG	----	----
				21-MAR-2014 08:40	21-MAR-2014 11:50	21-MAR-2014 08:40	----	----
				ES1406277-001	ES1406277-002	ES1406277-003	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	94.5	94.8	106	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	84.8	87.5	98.6	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	58.5	57.0	65.0	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	73.3	72.9	79.2	----	----
Anthracene-d10	1719-06-8	0.1	%	84.3	85.2	91.5	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	93.8	88.5	106	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	108	94.8	97.6	----	----
Toluene-D8	2037-26-5	0.1	%	99.2	84.8	86.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	84.6	86.9	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_21.3.14\_WG

---

---

---

---

Client sampling date / time

21-MAR-2014 08:50

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406277-004	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	0.040	---	---	---	---
Copper	7440-50-8	0.001	mg/L	0.004	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	0.002	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_21.3.14\_WG

---

---

---

---

Client sampling date / time

21-MAR-2014 08:50

---

---

---

---

Compound CAS Number LOR Unit ES1406277-004

---

---

---

---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_21.3.14\_WG**

----

----

----

----

Client sampling date / time

21-MAR-2014 08:50

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406277-004	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	<b>32.4</b>	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>64.9</b>	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	<b>57.2</b>	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>68.9</b>	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	<b>85.7</b>	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	<b>80.9</b>	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	<b>115</b>	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	<b>123</b>	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	<b>109</b>	----	----	----	----





## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b> : <b>ES1406277</b>  <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800  <b>Project</b> : VALES POINT <b>Site</b> : ---- <b>C-O-C number</b> : ---- <b>Sampler</b> : WG <b>Order number</b> : 0237747  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 17  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 28-MAR-2014  <b>No. of samples received</b> : 4 <b>No. of samples analysed</b> : 4
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3357796)</b>									
ES1406253-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	3.0	3.6	19.9	No Limit
ES1406273-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.0	9.5	14.9	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3358757)</b>									
ES1406273-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	32	31	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	63	95	40.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	426	507	17.3	0% - 20%
ES1406277-003	D01_21.3.14_WG	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	46	11.9	0% - 50%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3358758)</b>									
ES1406273-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
ES1406277-003	D01_21.3.14_WG	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355326)</b>									
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1405849-035	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355326) - continued</b>									
ES1405849-035	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355326)</b>									
ES1405849-022	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.1	1.1	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.3	2.6	23.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.0	2.4	21.2	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.1	0.8	24.2	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.2	1.0	24.4	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.8	1.5	18.5	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.3	1.1	18.8	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1.0	0.8	20.8	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	1.5	1.2	22.9	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	16.0	13.2	19.2	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.8	1.5	17.3	No Limit
ES1405849-035	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP080: BTEXN (QC Lot: 3354763) - continued</b>											
ES1406283-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
<b>Sub-Matrix: <b>WATER</b></b>											
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3358651)</b>											
ES1406272-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.012	0.012	0.0	0% - 50%		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.068	0.068	0.0	0% - 20%		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.037	0.044	17.9	0% - 20%		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.024	0.025	0.0	0% - 20%		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.040	0.045	11.0	0% - 20%		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.072	0.089	20.6	0% - 50%		
ME1400441-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.007	146	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.020	0.021	4.8	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3353758)</b>											
ES1406071-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
ES1406074-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355078)</b>											
ES1406191-015	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<4.7	<1.0	130	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<9.4	<2.0	130	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<9.4	<2.0	130	No Limit		
		ES1406191-016	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355078) - continued</b>									
ES1406191-016	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355078)</b>									
ES1406191-015	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<4.7	<0.5	162	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<4.7	<1.0	130	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<4.7	<1.0	130	No Limit
ES1406191-016	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355078) - continued</b>										
ES1406191-016	Anonymous	EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3355077)</b>										
ES1406191-015	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	12000	12000	0.8	0% - 20%	
		EP071: C10 - C14 Fraction	----	50	µg/L	3580	3580	0.0	0% - 20%	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
ES1406191-016	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	3580	3280	8.7	0% - 20%	
		EP071: C10 - C14 Fraction	----	50	µg/L	340	360	5.9	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	80	60	29.2	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361415)</b>										
ES1406191-015	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit	
ES1406191-016	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3355077)</b>										
ES1406191-015	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	7240	7070	2.4	0% - 20%	
		EP071: >C16 - C34 Fraction	----	100	µg/L	7980	8300	3.9	0% - 20%	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1406191-016	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	1080	1080	0.0	0% - 50%	
		EP071: >C16 - C34 Fraction	----	100	µg/L	2120	2440	14.0	0% - 20%	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361415)</b>										
ES1406191-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	70	60	0.0	No Limit	
ES1406191-016	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3361415)</b>										
ES1406191-015	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406191-016	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358757)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	107	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	112	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	108	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	105	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	113	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358758)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	104	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	103	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	108	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	79.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.0	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	86.1	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	81.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	79.8	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	79.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	81.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.0	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	94.3	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.9	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	97.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.4	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	98.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	97.6	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	109	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	98.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	106	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	98.2	70	118	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326) - continued</b>									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	107	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.4	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	96.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	97.6	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	107	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354763)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	117	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	101	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	100	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354763)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.7	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	111	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.7	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	85.8	63	131	
<b>EP080: BTEXN (QCLot: 3354763)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	76.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	87.7	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.7	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	79.9	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358651)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.4	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	107	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.9	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3353758)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3353758) - continued</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	101	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355078)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	33.1	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	87.7	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	84.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	61.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	76.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	70.6	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	71.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	73.0	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	69.0	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	35.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355078)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	69.5	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	72.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	80.3	64.3	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355078) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	82.5	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	82.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	83.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	84.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	87.7	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	75.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	75.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.6	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	85.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355077)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	97.0	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361415)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	107	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355077)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361415)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127	
<b>EP080: BTEXN (QCLot: 3361415)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	109	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3361415) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	99.2	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358757)</b>							
ES1406273-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	114	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	125	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	74.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358758)</b>							
ES1406273-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	105	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>							
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	75.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>							
ES1405849-022	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.8	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354763)</b>							
ES1406136-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>							
ES1405849-022	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.8	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.1	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	52	132



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
						Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354763)</b>								
ES1406136-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.3	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>								
ES1405849-022	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.7	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.8	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.3	52	132	
<b>EP080: BTEXN (QCLot: 3354763)</b>								
ES1406136-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	74.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.8	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	74.6	70	130		
<b>Sub-Matrix: WATER</b>								
				Matrix Spike (MS) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
						Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358651)</b>								
ES1406272-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.6	70	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.3	70	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.7	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	91.4	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	106	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	86.8	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.0	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3353758)</b>								
ES1406073-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	88.2	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355078)</b>								
ES1406191-003	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	20	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.8	60	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.7	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	90.3	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	76.8	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355078)</b>								
ES1406191-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	89.4	70	130	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	89.3	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355077)</b>								
ES1406191-003	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	97.5	74	150	





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355077) - continued</b>								
ES1406191-003	Anonymous	EP071: C15 - C28 Fraction	----	300 µg/L	101	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	107	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361415)</b>								
ES1406191-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	109	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355077)</b>								
ES1406191-003	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	96.7	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	105	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	107	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361415)</b>								
ES1406191-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	70	130	
<b>EP080: BTEXN (QCLot: 3361415)</b>								
ES1406191-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70	130	
		EP080: Toluene	108-88-3	25 µg/L	108	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	99.4	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354763)</b>											
ES1406136-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354763)</b>											
ES1406136-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354763)</b>											
ES1406136-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	74.0	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.2	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.0	----	70	130	----	----	
			106-42-3								
EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.8	----	70	130	----	----			





Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP080: BTEXN (QCLot: 3354763) - continued</b>											
ES1406136-001	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	74.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355325)</b>											
ES1405849-022	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	77.8	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	74.1	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	73.6	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355325)</b>											
ES1405849-022	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	95.7	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	70.8	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.3	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355326)</b>											
ES1405849-022	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.3	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.4	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	75.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	56.4	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355326)</b>											
ES1405849-022	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.1	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.8	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3358757)</b>											
ES1406273-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	114	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	114	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	125	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	74.8	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3358758)</b>											
ES1406273-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	105	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3353758)</b>											
ES1406073-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	88.2	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355077)</b>											
ES1406191-003	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	97.5	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	101	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	107	----	67	153	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355077)</b>											
ES1406191-003	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	96.7	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	105	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	107	----	67	153	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355078)</b>											
ES1406191-003	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.8	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.7	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	90.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	76.8	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355078)</b>											
ES1406191-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	89.4	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	89.3	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358651)</b>											
ES1406272-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.6	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.3	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.7	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	91.4	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	106	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	86.8	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361415)</b>											
ES1406191-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	109	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361415)</b>											
ES1406191-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3361415)</b>											
ES1406191-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	108	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		25 µg/L	99.4	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406277</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 28-MAR-2014
Sampler	: WG	No. of samples received	: 4
Order number	: 0237747	No. of samples analysed	: 4
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	----	----	----	25-MAR-2014	04-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	26-MAR-2014	17-SEP-2014	✓	27-MAR-2014	17-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	26-MAR-2014	18-APR-2014	✓	28-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP071) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	25-MAR-2014	04-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	25-MAR-2014	04-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	25-MAR-2014	04-APR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	24-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
Soil Glass Jar - Unpreserved (EP080) VU_MW14_3.3-3.7, D01_21.3.14_WG	VG_MW04_8.5,	21-MAR-2014	24-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_21.3.14_WG	21-MAR-2014	26-MAR-2014	17-SEP-2014	✓	26-MAR-2014	17-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_21.3.14_WG	21-MAR-2014	----	----	----	24-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_21.3.14_WG	21-MAR-2014	24-MAR-2014	28-MAR-2014	✓	27-MAR-2014	03-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_21.3.14_WG	21-MAR-2014	24-MAR-2014	28-MAR-2014	✓	27-MAR-2014	03-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_21.3.14_WG	21-MAR-2014	24-MAR-2014	28-MAR-2014	✓	27-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_21.3.14_WG	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_21.3.14_WG	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)





<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### ***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes***

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### ***Regular Sample Surrogates***

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406277**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : COLONGRA POWER STATION</b></p> <p><b>Order number : 0237749</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : WG</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 21-MAR-2014</b></p> <p><b>Client Requested Due Date : 28-MAR-2014</b></p>	<p><b>Issue Date : 22-MAR-2014 10:06</b></p> <p><b>Scheduled Reporting Date : <b>28-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.7°C - Ice present</b></p> <p><b>No. of samples received : 4</b></p> <p><b>No. of samples analysed : 4</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/PAH/Phenols/8Metals
ES1406277-001	21-MAR-2014 08:40	VU_MW14_3.3-3.7	✓
ES1406277-002	21-MAR-2014 11:50	VG_MW04_8.5	✓
ES1406277-003	21-MAR-2014 08:40	D01_21.3.14_WG	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEX/PAH/Phenols/Total 8 Metals
ES1406277-004	21-MAR-2014 08:50	R01_21.3.14_WG	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order** : **ES1406277**

**Client** : **ENVIRO RESOURCES MANAGEMENT**      **Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING      **Contact** : Barbara Hanna  
**Address** : GROUND FLOOR      **Address** : 277-289 Woodpark Road Smithfield  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail** : john.ewing@erm.com      **E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 02 8584 8888      **Telephone** : +61 2 8784 8555  
**Facsimile** : +61 02 8584 8800      **Facsimile** : +61 2 8784 8555

**Project** : VALES POINT      **Page** : 1 of 3

**Order number** : 0237747

**C-O-C number** : ----      **Quote number** : ES2014ENVRES0385 (SY/050/14 V3)

**Site** : ----

**Sampler** : WG      **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

**Date Samples Received** : 21-MAR-2014      **Issue Date** : 25-MAR-2014 12:47  
**Client Requested Due Date** : 28-MAR-2014      **Scheduled Reporting Date** : **28-MAR-2014**

**Delivery Details**

**Mode of Delivery** : Carrier      **Temperature** : 2.7°C - Ice present  
**No. of coolers/boxes** : 1 HARD      **No. of samples received** : 4  
**Security Seal** : Intact.      **No. of samples analysed** : 4

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406277-001	21-MAR-2014 08:40	VU_MW14_3.3-3.7	✓
ES1406277-002	21-MAR-2014 11:50	VG_MW04_8.5	✓
ES1406277-003	21-MAR-2014 08:40	D01_21.3.14_WG	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406277-004	21-MAR-2014 08:50	R01_21.3.14_WG	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406278</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 10
Site	: ----	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
		Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW01_0.1	VL_MW02_0.1	VL_MW02_1.0	D01_200314_GP	VL_MW03_0.2
				20-MAR-2014 08:15	20-MAR-2014 09:30	20-MAR-2014 09:40	20-MAR-2014 09:40	20-MAR-2014 10:05
Compound	CAS Number	LOR	Unit	ES1406278-001	ES1406278-002	ES1406278-003	ES1406278-004	ES1406278-006
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	5.8	----	8.8	10.1	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	No
Asbestos Type	1332-21-4	-	--	----	-	----	----	-
Sample weight (dry)	----	0.01	g	----	915	----	----	922
APPROVED IDENTIFIER:	----	-	--	----	C.OWLER	----	----	C.OWLER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	0.915	----	----	0.922
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	11	----	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	16	----	4	6	----
Copper	7440-50-8	5	mg/kg	20	----	<5	<5	----
Lead	7439-92-1	5	mg/kg	9	----	<5	<5	----
Nickel	7440-02-0	2	mg/kg	14	----	<2	<2	----
Zinc	7440-66-6	5	mg/kg	60	----	<5	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW01_0.1	VL_MW02_0.1	VL_MW02_1.0	D01_200314_GP	VL_MW03_0.2
				20-MAR-2014 08:15	20-MAR-2014 09:30	20-MAR-2014 09:40	20-MAR-2014 09:40	20-MAR-2014 10:05
Compound	CAS Number	LOR	Unit	ES1406278-001	ES1406278-002	ES1406278-003	ES1406278-004	ES1406278-006
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	2.2	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	18.3	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	2.1	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	42.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	6.8	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	77.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	60.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	18.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	16.2	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	17.4	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	6.3	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	9.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	7.5	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	1.5	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	8.9	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	296	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	16.2	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	16.2	----	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	16.2	----	1.2	1.2	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	420	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	140	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	560	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VG_MW01_0.1	VL_MW02_0.1	VL_MW02_1.0	D01_200314_GP	VL_MW03_0.2
				20-MAR-2014 08:15	20-MAR-2014 09:30	20-MAR-2014 09:40	20-MAR-2014 09:40	20-MAR-2014 10:05
Compound	CAS Number	LOR	Unit	ES1406278-001	ES1406278-002	ES1406278-003	ES1406278-004	ES1406278-006
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	70	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	470	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	540	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	70	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	112	----	86.0	81.4	----
2-Chlorophenol-D4	93951-73-6	0.1	%	115	----	79.9	86.2	----
2,4,6-Tribromophenol	118-79-6	0.1	%	106	----	118	104	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	120	----	96.2	93.4	----
Anthracene-d10	1719-06-8	0.1	%	112	----	98.6	91.2	----
4-Terphenyl-d14	1718-51-0	0.1	%	118	----	97.0	89.7	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	----	98.1	113	----
Toluene-D8	2037-26-5	0.1	%	88.5	----	82.6	77.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	90.2	----	84.8	82.6	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
				20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----
Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	8.3	----	9.6	16.9	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	1010	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	C.OWLER	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	1.01	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	----
Fibrous Asbestos	----	0.002	g	----	<0.002	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	<0.01	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	<0.001	----	----	----
Trace Asbestos Detected	----	5	Fibres	----	No	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	4	----	11	27	----
Copper	7440-50-8	5	mg/kg	<5	----	21	<5	----
Lead	7439-92-1	5	mg/kg	<5	----	8	8	----
Nickel	7440-02-0	2	mg/kg	<2	----	20	<2	----
Zinc	7440-66-6	5	mg/kg	<5	----	55	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
				20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----
Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	<5	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
				20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----
Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	<0.5	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
				20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----
Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
				20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----
Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	<0.0005	----	----
PFOA	335-67-1	0.0005	mg/kg	----	----	<0.0005	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	<0.005	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	79.0	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	100	----	----
Toluene-D8	2037-26-5	0.1	%	----	----	112	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	95.8	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	83.2	----	84.4	76.8	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL_MW03_0.5	VB_MW05_0.25	VB_MW05_1.0	VU_MW14_1.0	----
20-MAR-2014 10:10	20-MAR-2014 11:35	20-MAR-2014 11:45	20-MAR-2014 13:30	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406278-007	ES1406278-008	ES1406278-009	ES1406278-010	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	86.6	----	90.0	78.9	----
2,4,6-Tribromophenol	118-79-6	0.1	%	107	----	106	97.4	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.6	----	94.8	85.8	----
Anthracene-d10	1719-06-8	0.1	%	91.7	----	94.0	86.2	----
4-Terphenyl-d14	1718-51-0	0.1	%	91.4	----	93.4	85.6	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	----	105	93.1	----
Toluene-D8	2037-26-5	0.1	%	89.8	----	102	78.3	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.0	----	99.1	84.4	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_GP

---

---

---

---

Client sampling date / time

20-MAR-2014 10:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406278-005	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_GP

---

---

---

---

Client sampling date / time

20-MAR-2014 10:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406278-005	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>R01_200314_GP</b>	----	----	----	----
----------------------	------	------	------	------

Client sampling date / time

20-MAR-2014 10:00	----	----	----	----
-------------------	------	------	------	------

Compound	CAS Number	LOR	Unit	ES1406278-005	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EP075(SIM)S: Phenolic Compound Surrogates - Continued

Phenol-d6	13127-88-3	0.1	%	32.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	62.8	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	70.6	----	----	----	----

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	71.1	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	70.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	64.0	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.2	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	85.4	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	82.8	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VL_MW02_0.1 - 20-MAR-2014 09:30	Pale brown clay soil with some grey rocks plus a trace of vegetation
EA200: Description	VL_MW03_0.2 - 20-MAR-2014 10:05	Pale grey-brown clay soil with a trace of charcoal and vegetation
EA200: Description	VB_MW05_0.25 - 20-MAR-2014 11:35	Pale brown sandy soil with some small brown rocks plus a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



## QUALITY CONTROL REPORT

Work Order	: <b>ES1406278</b>	Page	: 1 of 20
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Edwandy Fadjjar	Organic Coordinator	Newcastle - Asbestos
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3361300)</b>									
ES1405849-040	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.5	6.8	4.9	No Limit
ES1406275-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.9	6.7	3.4	No Limit
<b>EA055: Moisture Content (QC Lot: 3361301)</b>									
ES1406279-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	9.6	15.3	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3363545)</b>									
ES1406063-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	22	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	11	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	13	14	0.0	No Limit
ES1406306-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	20	10.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	21	24	10.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	41	50	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	25	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	96	104	8.6	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363546)</b>									
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406306-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3355400)</b>									
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406140-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354769) - continued</b>											
ES1406273-001	Anonymous	EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3354769)</b>											
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3354769)</b>											
ES1406273-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074H: Naphthalene (QC Lot: 3354769)</b>											
ES1406273-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828)</b>											
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406275-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828) - continued</b>									
ES1406275-008	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406275-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828) - continued</b>									
ES1406275-008	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354768)</b>									
ES1406273-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406280-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354827)</b>									
ES1406001-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406275-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354768)</b>									
ES1406273-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406280-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354827)</b>									
ES1406001-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406275-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3354768)</b>									
ES1406273-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406280-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3359304)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP231: Perfluorinated Compounds (QC Lot: 3359304) - continued</b>									
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
ES1406360-002	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
<b>Sub-Matrix: WATER</b>									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3358884)</b>									
ES1404526-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1406274-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.026	0.024	6.6	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354821)</b>									
ES1406140-012	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406281-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406278-005	R01_200314_GP	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1406278-005	R01_200314_GP	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit



Page : 9 of 20  
 Work Order : ES1406278  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3361095) - continued</b>									
ES1406274-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1406278-005	R01_200314_GP	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.4	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	102	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	77.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3354769)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	105	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	110	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	116	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	112	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	114	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	114	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3354769)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	98.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	105	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	103	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	106	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3354769)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	93.4	54	126	
<b>EP074D: Fumigants (QCLot: 3354769)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	55	133	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3354769) - continued</b>									
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	113	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	93.0	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	104	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	87.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	94.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	98.0	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	103	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	111	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	105	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	106	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	100	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	110	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	98.2	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	110	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	109	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	104	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	118	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	124	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	114	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	117	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	101	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	105	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	95.2	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	92.2	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	127	48	136	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	118	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	112	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	116	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	116	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	117	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	118	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	117	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	120	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	124	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3354769)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	110	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	103	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP074H: Naphthalene (QCLot: 3354769)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	123	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.6	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828) - continued</b>								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.6	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	95.0	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	91.3	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	72.4	114
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354768)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	122	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354768)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	126	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	103	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	108	63	131
<b>EP080: BTEXN (QCLot: 3354768)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	110	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	110	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	114	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	114	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.0	62	138
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	75.6	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	72.7	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	75.9	56	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>								



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884) - continued</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	108	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.1	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	40.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	71.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	67.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	82.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	81.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	78.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	87.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	84.9	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	69.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	78.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	87.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152) - continued</b>									
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	87.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	86.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	89.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	77.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	91.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	99.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	86.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	81.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	83.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	101	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	90.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355151)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.9	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	106	67	127	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.1	75	127
<b>EP080: BTEXN (QCLot: 3361095)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	103	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.6	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>							
ES1406063-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	82.0	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	111	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>							
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>							
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	---	1 mg/kg	95.0	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>							
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	111	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.5	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>							
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.6	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>							
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70	130





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828) - continued</b>								
ES1406001-002	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>								
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	52	132	
<b>EP080: BTEXN (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.7	70	130	
	91-20-3	2.5 mg/kg	73.9	70	130			
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>								
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	56	138	

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>							
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	70	130





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3354768) - continued</b>										
ES1406273-001	Anonymous	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.9	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>										
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	111	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.5	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>										
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.6	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>										
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>										
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>										
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	----	70	130	----	----
<b>EP231: Perfluorinated Compounds (QCLot: 3359304)</b>										
ES1406139-002	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	77.2	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	72.5	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	67.6	----	56	138	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545)</b>										
ES1406063-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	82.0	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	111	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	102	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	107	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363545) - continued</b>										
ES1406063-001	Anonymous	EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363546)</b>										
ES1406063-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>											
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>											
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	103	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	94.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406278</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VG_MW01_0.1, D01_200314_GP, VB_MW05_1.0, VL_MW02_1.0, VL_MW03_0.5, VU_MW14_1.0	20-MAR-2014	---	---	---	27-MAR-2014	03-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VL_MW02_0.1, VB_MW05_0.25, VL_MW03_0.2,	20-MAR-2014	---	16-SEP-2014	---	28-MAR-2014	24-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VG_MW01_0.1, D01_200314_GP, VB_MW05_1.0, VL_MW02_1.0, VL_MW03_0.5, VU_MW14_1.0	20-MAR-2014	28-MAR-2014	16-SEP-2014	✓	31-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VG_MW01_0.1, D01_200314_GP, VB_MW05_1.0, VL_MW02_1.0, VL_MW03_0.5, VU_MW14_1.0	20-MAR-2014	28-MAR-2014	17-APR-2014	✓	31-MAR-2014	17-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_MW05_1.0	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VG_MW01_0.1, D01_200314_GP, VB_MW05_1.0, VL_MW02_1.0, VL_MW03_0.5, VU_MW14_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_1.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VG_MW01_0.1, VL_MW02_1.0, D01_200314_GP, VL_MW03_0.5, VB_MW05_1.0, VU_MW14_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VG_MW01_0.1, VL_MW02_1.0, D01_200314_GP, VL_MW03_0.5, VB_MW05_1.0, VU_MW14_1.0	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VG_MW01_0.1, VL_MW02_1.0, D01_200314_GP, VL_MW03_0.5, VB_MW05_1.0, VU_MW14_1.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP080) VG_MW01_0.1, VL_MW02_1.0, D01_200314_GP, VL_MW03_0.5, VB_MW05_1.0, VU_MW14_1.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>							
Soil Glass Jar - Unpreserved (EP231) VB_MW05_1.0	20-MAR-2014	27-MAR-2014	16-SEP-2014	✓	27-MAR-2014	06-MAY-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_200314_GP	20-MAR-2014	26-MAR-2014	16-SEP-2014	✓	27-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_200314_GP	20-MAR-2014	----	----	----	24-MAR-2014	17-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_200314_GP	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_GP	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_GP	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_GP	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_GP	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	30	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200C	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1406278</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: GAVIN POWELL		

**Dates**

<b>Date Samples Received</b>	: 21-MAR-2014	<b>Issue Date</b>	: 24-MAR-2014 09:08
<b>Client Requested Due Date</b>	: 31-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>31-MAR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 2.7°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 10
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 10

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-27 TRH/BTEX/N/PAH/Phenols/8Metals
ES1406278-001	20-MAR-2014 08:15	VG_MW01_0.1					✓
ES1406278-002	20-MAR-2014 09:30	VL_MW02_0.1	✓				
ES1406278-003	20-MAR-2014 09:40	VL_MW02_1.0					✓
ES1406278-004	20-MAR-2014 09:40	D01_200314_GP					✓
ES1406278-006	20-MAR-2014 10:05	VL_MW03_0.2	✓				
ES1406278-007	20-MAR-2014 10:10	VL_MW03_0.5					✓
ES1406278-008	20-MAR-2014 11:35	VB_MW05_0.25	✓				
ES1406278-009	20-MAR-2014 11:45	VB_MW05_1.0		✓	✓	✓	✓
ES1406278-010	20-MAR-2014 13:30	VU_MW14_1.0					✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEX/N/PAH/Phenols/Total 8 Metals
ES1406278-005	20-MAR-2014 10:00	R01_200314_GP	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------







## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406279</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KATIE BRISTOW <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 31-MAR-2014  <b>No. of samples received</b> : 2 <b>No. of samples analysed</b> : 2
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW05_2.7	VU_MW07_2.5	---	---	---
				21-MAR-2014 08:00	21-MAR-2014 10:30	---	---	---
Compound	CAS Number	LOR	Unit	ES1406279-001	ES1406279-002	---	---	---
<b>EA002 : pH (Soils)</b>								
pH Value	---	0.1	pH Unit	4.1	4.1	---	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	11.2	9.7	---	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	17	23	---	---	---
Copper	7440-50-8	5	mg/kg	12	<5	---	---	---
Lead	7439-92-1	5	mg/kg	6	<5	---	---	---
Nickel	7440-02-0	2	mg/kg	4	<2	---	---	---
Zinc	7440-66-6	5	mg/kg	19	<5	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW05_2.7	VU_MW07_2.5	---	---	---
				21-MAR-2014 08:00	21-MAR-2014 10:30	---	---	---
Compound	CAS Number	LOR	Unit	ES1406279-001	ES1406279-002	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	---	---	---
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	---	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	<50	---	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	<100	---	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	<100	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	---	---	---
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VU_MW05_2.7	VU_MW07_2.5	----	----	----
				21-MAR-2014 08:00	21-MAR-2014 10:30	----	----	----
				ES1406279-001	ES1406279-002	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	96.6	85.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	92.7	89.1	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	109	104	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.5	94.0	----	----	----
Anthracene-d10	1719-06-8	0.1	%	97.5	92.1	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.7	90.0	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	106	----	----	----
Toluene-D8	2037-26-5	0.1	%	94.2	104	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	93.1	98.3	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0



## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406279</b>	Page	: 1 of 11
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 21-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 31-MAR-2014
<b>Sampler</b>	: KATIE BRISTOW	<b>No. of samples received</b>	: 2
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 2
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3365943)</b>									
ES1406229-021	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.2	6.2	0.0	0% - 20%
ES1406306-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.1	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3361301)</b>									
ES1406279-001	VU_MW05_2.7	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	9.6	15.3	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3363369)</b>									
ES1406237-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	7	30.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	33	18.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406280-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	5	54.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363370)</b>									
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406280-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3354828) - continued</b>									
ES1406275-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828)</b>									
ES1406001-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406275-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3354828) - continued</b>										
ES1406275-008	Anonymous	EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354764)</b>										
ES1406275-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406284-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1406275-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354764)</b>										
ES1406275-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406284-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354827)</b>										
ES1406001-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406275-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3354764)</b>										
ES1406275-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406284-005	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	

Page : 6 of 11  
 Work Order : ES1406279  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3354764) - continued</b>									
ES1406284-005	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	87	129	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	103	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	99.5	81	123	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	112	84	130	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.4	66	112	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	90.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	94.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	98.6	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.9	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	93.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	98.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	98.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	87.3	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.4	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	105	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	104	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	98.6	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.5	70	118	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828) - continued</b>									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	95.0	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	91.3	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.0	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	103	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	108	63	131	
<b>EP080: BTEXN (QCLot: 3354764)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.8	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.8	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.9	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	80.2	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.0	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	65.6	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>								
ES1406237-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130	





Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369) - continued</b>								
ES1406237-002	Anonymous	EG005T: Copper	7440-50-8	125 mg/kg	106	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	100	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>								
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>								
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>								
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>								
ES1406275-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>								
ES1406275-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>								
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	52	132	
<b>EP080: BTEXN (QCLot: 3354764)</b>								
ES1406275-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.6	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.5	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	70	130		



### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354764)</b>											
ES1406275-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354764)</b>											
ES1406275-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.7	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3354764)</b>											
ES1406275-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	78.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	74.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.5	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354827)</b>											
ES1406001-002	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	82.4	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	106	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	99.2	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354827)</b>											
ES1406001-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	115	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	98.6	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.6	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354828)</b>											
ES1406001-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	125	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	122	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	94.4	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354828)</b>											
ES1406001-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	119	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>											
ES1406237-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	103	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----	

Page : 11 of 11  
 Work Order : ES1406279  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369) - continued</b>										
ES1406237-002	Anonymous	EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	100	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>										
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406279</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: KATIE BRISTOW	No. of samples received	: 2
Order number	: 0237747	No. of samples analysed	: 2
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	31-MAR-2014	28-MAR-2014	*	28-MAR-2014	31-MAR-2014	✓
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	----	----	----	27-MAR-2014	04-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	28-MAR-2014	17-SEP-2014	✓	28-MAR-2014	17-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	28-MAR-2014	18-APR-2014	✓	31-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	28-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	25-MAR-2014	04-APR-2014	✓	28-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP080) VU_MW05_2.7, VU_MW07_2.5	21-MAR-2014	25-MAR-2014	04-APR-2014	✓	28-MAR-2014	04-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method	Extraction / Preparation			Analysis				
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue	
<b>EA002 : pH (Soils)</b>								
Soil Glass Jar - Unpreserved	VU_MW05_2.7,	VU_MW07_2.5	31-MAR-2014	28-MAR-2014	3	----	----	----

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406279**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : KATIE BRISTOW</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 21-MAR-2014</b></p> <p><b>Client Requested Due Date : 31-MAR-2014</b></p>	<p><b>Issue Date : 22-MAR-2014 10:13</b></p> <p><b>Scheduled Reporting Date : <b>31-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.7°C - Ice present</b></p> <p><b>No. of samples received : 2</b></p> <p><b>No. of samples analysed : 2</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1406279-001	21-MAR-2014 08:00	VU_MW05_2.7	✓
ES1406279-002	21-MAR-2014 10:30	VU_MW07_2.5	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB ) Email Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406279**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : KATIE BRISTOW</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 21-MAR-2014</b></p> <p><b>Client Requested Due Date : 31-MAR-2014</b></p>	<p><b>Issue Date : 25-MAR-2014 11:44</b></p> <p><b>Scheduled Reporting Date : 31-MAR-2014</b></p>
---	---

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.7°C - Ice present</b></p> <p><b>No. of samples received : 2</b></p> <p><b>No. of samples analysed : 2</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - S-27 TRH/BTEX/NIPAH/Phenols/8Metals
ES1406279-001	21-MAR-2014 08:00	VU_MW05_2.7	✓	✓
ES1406279-002	21-MAR-2014 10:30	VU_MW07_2.5	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB ) Email Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com



## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406280</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: CHRIS MASTERS	No. of samples received	: 10
Site	: ----	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Position

Accreditation Category

Ashesh Patel

Inorganic Chemist

Sydney Inorganics

Celine Conceicao

Senior Spectroscopist

Sydney Inorganics

Christopher Owler

Team Leader - Asbestos

Newcastle - Asbestos

Edwandy Fadjjar

Organic Coordinator

Sydney Organics

Pabi Subba

Senior Organic Chemist

Sydney Organics

Sanjeshni Jyoti Mala

Senior Chemist Volatile

Sydney Organics





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	----	628	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	15.3	10.8	16.2	18.8	15.7
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	190	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	----	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.190	----	----	----	----
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
Fibrous Asbestos	----	0.002	g	<0.002	----	----	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	----	----	----	----
Trace Asbestos Detected	----	5	Fibres	No	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	6	3	5	8
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	32	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	24	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	<5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EP074G: Trihalomethanes - Continued</b>								
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	<b>75.0</b>	<b>83.0</b>	<b>81.0</b>	<b>78.0</b>
<b>EP074S: VOC Surrogates</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW02_2.0	VS_MW01_3.0	VM_MW01_2.0	VS_MW02_4.0	VS_SB01_3.0
				20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00	20-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406280-001	ES1406280-002	ES1406280-003	ES1406280-004	ES1406280-005
<b>EP074S: VOC Surrogates - Continued</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	102	----	120	102
Toluene-D8	2037-26-5	0.1	%	----	116	----	136	111
4-Bromofluorobenzene	460-00-4	0.1	%	----	95.9	----	114	91.4
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	87.7	86.8	86.4	84.5	90.1
2-Chlorophenol-D4	93951-73-6	0.1	%	80.1	80.7	82.8	77.4	85.0
2,4,6-Tribromophenol	118-79-6	0.1	%	69.6	62.5	62.8	63.2	62.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	75.2	70.8	75.9	71.7	73.4
Anthracene-d10	1719-06-8	0.1	%	82.5	81.4	81.6	75.5	76.6
4-Terphenyl-d14	1718-51-0	0.1	%	74.8	76.6	82.4	75.3	77.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	107	96.8	124	106
Toluene-D8	2037-26-5	0.1	%	79.7	106	81.6	124	101
4-Bromofluorobenzene	460-00-4	0.1	%	91.5	100	86.3	118	95.4



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW03_6.0	TRIP SPIKE	BLK	TSC	----
				20-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406280-006	ES1406280-008	ES1406280-009	ES1406280-010	----
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	457	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.0	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	3	----	----	----	----
Copper	7440-50-8	5	mg/kg	6	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	6	----	----	----	----
Zinc	7440-66-6	5	mg/kg	26	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW03_6.0	TRIP SPIKE	BLK	TSC	----
				20-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406280-006	ES1406280-008	ES1406280-009	ES1406280-010	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<b>0.6</b>	<0.2	<b>0.6</b>	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VM_MW03_6.0	TRIP SPIKE	BLK	TSC	----
				20-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00	----
				ES1406280-006	ES1406280-008	ES1406280-009	ES1406280-010	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
Toluene	108-88-3	0.5	mg/kg	<0.5	15.0	<0.5	15.3	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1.8	<0.5	1.8	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	8.9	<0.5	9.0	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	3.6	<0.5	3.6	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	12.5	<0.5	12.6	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	29.9	<0.2	30.3	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	79.0	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	82.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	75.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	60.3	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	72.4	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	77.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	81.4	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.9	98.3	102	96.6	----
Toluene-D8	2037-26-5	0.1	%	83.2	84.0	83.7	81.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	86.0	87.8	89.9	85.3	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_CM

---

---

---

---

Client sampling date / time

20-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406280-007	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020F: Dissolved Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035F: Dissolved Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_200314\_CM

---

---

---

---

Client sampling date / time

20-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406280-007	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>R01_200314_CM</b>	----	----	----	----
----------------------	------	------	------	------

Client sampling date / time

20-MAR-2014 15:00	----	----	----	----
-------------------	------	------	------	------

Compound	CAS Number	LOR	Unit	ES1406280-007	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EP075(SIM)S: Phenolic Compound Surrogates - Continued

Phenol-d6	13127-88-3	0.1	%	38.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	74.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	78.7	----	----	----	----

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	83.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	83.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	79.7	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	75.8	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	103	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	81.2	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW02_2.0 - 20-MAR-2014 15:00	Pale yellow-orange clay soil with some small red rocks plus a trace of vegetation



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406280</b>	Page	: 1 of 20
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: CHRIS MASTERS	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Sydney Inorganics
Edwandy Fadjjar	Organic Coordinator	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3360715)</b>									
ES1406140-009	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	536	597	10.8	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3361301)</b>									
ES1406279-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	9.6	15.3	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3363369)</b>									
ES1406237-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	190	210	9.7	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	7	30.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	33	18.1	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	5	7	30.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406280-003	VM_MW01_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	5	54.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	7	10	35.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	6	11	53.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363370)</b>									
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406280-003	VM_MW01_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3355400)</b>									
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406140-016	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074B: Oxygenated Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3354769) - continued</b>									
ES1406273-001	Anonymous	EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3354769)</b>									
ES1406273-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355332)</b>									
ES1406252-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3355332) - continued</b>									
ES1406252-001	Anonymous	EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406282-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355332)</b>									
ES1406252-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3355332) - continued</b>									
ES1406282-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3354768)</b>									
ES1406273-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406280-002	VS_MW01_3.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3355331)</b>									
ES1406252-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406282-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3354768)</b>									
ES1406273-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406280-002	VS_MW01_3.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3355331)</b>									
ES1406252-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406282-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3354768)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3354768) - continued</b>									
ES1406273-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406280-002	VS_MW01_3.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>Sub-Matrix: WATER</b>									
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3360698)</b>									
ES1406233-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0033	0.0034	0.0	0% - 20%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.010	0.011	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.020	0.020	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.182	0.185	1.4	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.513	0.523	2.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.051	0.051	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	296	286	3.4	0% - 20%
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3360697)</b>									
ES1406227-010	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406278-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1406278-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3361095)</b>									
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3361095) - continued</b>									
ES1406274-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1406278-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3360715)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	99.4	96	104	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	87	129	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	83	129	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	106	88	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	103	80	122	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	71	133	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	104	84	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	110	86	128	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	99.5	81	123	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	104	85	127	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	107	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	112	84	130	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.9	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	109	95	129	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	73.8	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.4	66	112	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	77.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3354769)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	105	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	110	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	116	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	112	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	114	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	114	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3354769)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3354769) - continued</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	98.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	105	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	103	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	106	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3354769)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	93.4	54	126	
<b>EP074D: Fumigants (QCLot: 3354769)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	113	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	93.0	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	104	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	87.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	94.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	98.0	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	103	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	111	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	105	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	106	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	106	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	100	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	110	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	98.2	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	110	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	109	64	120	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769) - continued</b>									
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	104	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	118	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	124	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	114	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	117	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	101	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	105	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	95.2	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	92.2	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	127	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	118	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	112	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	116	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	116	62	130	
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	117	63	129	
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	118	63	129	
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	117	66	128	
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	120	54	134	
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	124	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3354769)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	110	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	103	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP074H: Naphthalene (QCLot: 3354769)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	123	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355332)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	110	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	96.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	96.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	103	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	80.9	60.3	117	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	93.8	69	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	89.2	68	112	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355332) - continued</b>									
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	90.8	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	84.9	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	78.2	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	82.5	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	21.8	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355332)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	97.8	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	106	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	107	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	108	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.5	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	102	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	99.8	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	101	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	91.7	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	89.2	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	89.5	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.4	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354768)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	122	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355331)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	89.4	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	102	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354768)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	126	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355331)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	92.3	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	107	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	90.1	63	131	
<b>EP080: BTEXN (QCLot: 3354768)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	110	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	102	62	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3354768) - continued</b>									
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	110	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	114	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	114	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.0	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3360698)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.7	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	107	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.3	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3360697)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.5	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	40.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	71.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	67.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	82.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	81.9	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	78.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	87.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355152) - continued</b>									
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	84.9	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	69.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355152)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	78.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	87.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	87.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	86.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	89.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	87.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	77.9	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	91.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	99.4	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	86.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	81.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	83.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	101	59	129	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355151) - continued</b>									
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	90.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355151)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.9	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	106	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.1	75	127	
<b>EP080: BTEXN (QCLot: 3361095)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	103	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.6	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>								
ES1406237-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	106	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	100	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>								
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70	130	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>								
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	70	130	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>								
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	111	70	130	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.5	70	130	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>								
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.6	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355332)</b>								
ES1406252-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	93.9	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	84.7	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.0	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.7	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	43.1	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355332)</b>								
ES1406252-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	78.7	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	77.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355331)</b>								
ES1406252-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	84.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	92.9	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355331)</b>								
ES1406252-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	114	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.2	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.0	52	132	
<b>EP080: BTEXN (QCLot: 3354768)</b>								
ES1406273-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.0	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	92.3	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.7	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	73.9	70	130			

Sub-Matrix: **WATER**

Matrix Spike (MS) Report



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3360698)</b>								
ES1406233-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	112	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	108	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	113	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	112	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3360697)</b>								
ES1406227-010	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.3	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	70	130	
<b>EP080: BTEXN (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	94.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	70	130	
	91-20-3	25 µg/L	110	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354768)</b>										
ES1406273-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354768)</b>										
ES1406273-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3354768)</b>										
ES1406273-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.0	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	92.3	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080: BTEXN (QCLot: 3354768) - continued</b>											
ES1406273-001	Anonymous	EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	96.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.7	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.9	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3354769)</b>											
ES1406273-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	111	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.5	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3354769)</b>											
ES1406273-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	97.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355331)</b>											
ES1406252-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	84.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	80.5	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	92.9	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355331)</b>											
ES1406252-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	114	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	74.2	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	60.0	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355332)</b>											
ES1406252-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	93.9	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	84.7	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.7	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	43.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3355332)</b>											
ES1406252-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	78.7	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	77.0	----	70	130	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3355400)</b>											
ES1406004-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3363369)</b>											
ES1406237-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	103	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	106	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	98.4	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	100	----	70	130	----	----	





Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363370)</b>										
ES1406237-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3360697)</b>											
ES1406227-010	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.3	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3360698)</b>											
ES1406233-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	112	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	108	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	113	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	112	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	94.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----	



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406280</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: CHRIS MASTERS	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA032: Electrical Conductivity (saturated paste)</b>							
<b>Soil Glass Jar - Unpreserved (EA032)</b> VM_MW01_2.0, VM_MW03_6.0	20-MAR-2014	----	----	----	27-MAR-2014	16-SEP-2014	✓
<b>EA055: Moisture Content</b>							
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	----	----	----	27-MAR-2014	03-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
<b>Snap Lock Bag (EA200)</b> VO_MW02_2.0	20-MAR-2014	---	16-SEP-2014	----	28-MAR-2014	24-SEP-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	28-MAR-2014	16-SEP-2014	✓	28-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	28-MAR-2014	17-APR-2014	✓	31-MAR-2014	17-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	27-MAR-2014	05-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074D: Fumigants</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074H: Naphthalene</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP074G: Trihalomethanes</b>								
Soil Glass Jar - Unpreserved (EP074) VS_MW01_3.0, VS_SB01_3.0	VS_MW02_4.0	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	27-MAR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VO_MW02_2.0, VM_MW01_2.0, VS_SB01_3.0	VS_MW01_3.0, VS_MW02_4.0, VM_MW03_6.0	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	27-MAR-2014	05-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VO_MW02_2.0, VM_MW01_2.0, VS_SB01_3.0	VS_MW01_3.0, VS_MW02_4.0, VM_MW03_6.0	20-MAR-2014	26-MAR-2014	03-APR-2014	✓	27-MAR-2014	05-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE, BLK, TSC	18-MAR-2014	25-MAR-2014	01-APR-2014	✓	27-MAR-2014	01-APR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP080) BLK	18-MAR-2014	25-MAR-2014	01-APR-2014	✓	27-MAR-2014	01-APR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VO_MW02_2.0, VS_MW01_3.0, VM_MW01_2.0, VS_MW02_4.0, VS_SB01_3.0, VM_MW03_6.0	20-MAR-2014	25-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_200314_CM	20-MAR-2014	---	16-SEP-2014	----	27-MAR-2014	16-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_200314_CM	20-MAR-2014	---	17-APR-2014	----	27-MAR-2014	17-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_200314_CM	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_CM	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_200314_CM	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_CM	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_200314_CM	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.





Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1406233-001	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP074S: VOC Surrogates	ES1406280-004	VS_MW02_4.0	Toluene-D8	2037-26-5	136 %	66-136 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1406280</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: CHRIS MASTERS</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 21-MAR-2014</b>	<b>Issue Date</b>	<b>: 24-MAR-2014 09:47</b>
<b>Client Requested Due Date</b>	<b>: 31-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 31-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 2.7°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 10</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 10</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP080 BTEXN	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES1406280-001	20-MAR-2014 15:00	VO_MW02_2.0		✓	✓				✓	
ES1406280-002	20-MAR-2014 15:00	VS_MW01_3.0				✓	✓			
ES1406280-003	20-MAR-2014 15:00	VM_MW01_2.0	✓			✓				
ES1406280-004	20-MAR-2014 15:00	VS_MW02_4.0				✓	✓			
ES1406280-005	20-MAR-2014 15:00	VS_SB01_3.0				✓	✓			
ES1406280-006	20-MAR-2014 15:00	VM_MW03_6.0	✓			✓				
ES1406280-008	18-MAR-2014 15:00	TRIP SPIKE						✓		
ES1406280-009	18-MAR-2014 15:00	BLK								✓
ES1406280-010	18-MAR-2014 15:00	TSC						✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1406280-001	20-MAR-2014 15:00	VO_MW02_2.0	✓	
ES1406280-002	20-MAR-2014 15:00	VS_MW01_3.0		✓
ES1406280-003	20-MAR-2014 15:00	VM_MW01_2.0		✓
ES1406280-004	20-MAR-2014 15:00	VS_MW02_4.0		✓
ES1406280-005	20-MAR-2014 15:00	VS_SB01_3.0		✓
ES1406280-006	20-MAR-2014 15:00	VM_MW03_6.0		✓



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27 TRH/BTEX/PAH/Phenols/8 Metals
ES1406280-007	20-MAR-2014 15:00	R01_200314_CM	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB ) Email Symphony.deltanorth@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**TURNAROUND REQUIREMENTS:**  
Standard TAT (List due date):  
Non Standard or urgent TAT (List due date):

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** CHRIS MASTERS  
**COC emailed to ALS:** YES / NO  
**EDD FORMAT (or default):**

**RECEIVED BY:** [Signature]  
**DATE/TIME:** 21/3 19:00

**RELINQUISHED BY:** [Signature]  
**DATE/TIME:** 21/3 19:00

**FOR LABORATORY USE ONLY (Circle)**  
Catalytic Seal Intact?  YES  NO  
Production/Residuals/Leakage/Production/Seal Intact?  YES  NO  
Random Sampling Temperature on Receipt?  YES  NO  
Other comment:  YES  NO

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information	
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH	PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	PH/CEC	P&S sieve / TOC		EC Saturated Paste
1	VO-MW02-2.0	20/3/14	S	1 bag, 1 jar	2	X	X	X	X	X	X	X	X	X	X	X	Environmental Division Sydney Work Order <b>ES1406280</b>  Telephone: +61-2-8784 8555 <i>analyse for: BTEX only</i> <i>analyse: TRHCo-G → BTEX</i>
2	VS-MW01-3.0	20/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
3	VM-MW01-2.0	20/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
4	VS-MW02-4.0	20/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
5	VS-SB01-2.0	20/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
6	VM-MW03-6.0	20/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
7	2001-200314-CM	20/3/14	W	4 containers	4	X	X	X	X	X	X	X	X	X	X		
8	IMO spike	6/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
9	Bik	6/3/14	S	1 jar	1	X	X	X	X	X	X	X	X	X	X		
10	ISC		S			X	X	X	X	X	X	X	X	X	X		
<b>TOTAL:</b>																	

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406339</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 24-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: GP	No. of samples received	: 12
Site	: ----	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

### EA200 Legend

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MWB3A_0.35	VT_MW01_0.2	VT_MW01_1.0	VT_MW03B_0.5	VI_MW02_0.3
				21-MAR-2014 08:35	21-MAR-2014 09:30	21-MAR-2014 09:50	21-MAR-2014 10:40	21-MAR-2014 12:20
				ES1406339-001	ES1406339-002	ES1406339-003	ES1406339-004	ES1406339-005
Compound	CAS Number	LOR	Unit					
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	----	71	----	----
+150µm	----	1	%	----	----	64	----	----
+300µm	----	1	%	----	----	49	----	----
+425µm	----	1	%	----	----	42	----	----
+600µm	----	1	%	----	----	37	----	----
+1180µm	----	1	%	----	----	34	----	----
+2.36mm	----	1	%	----	----	26	----	----
+4.75mm	----	1	%	----	----	17	----	----
+9.5mm	----	1	%	----	----	6	----	----
+19.0mm	----	1	%	----	----	<1	----	----
+37.5mm	----	1	%	----	----	<1	----	----
+75.0mm	----	1	%	----	----	<1	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	7.7	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.4	17.5	----	12.7	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	----	29	----	----
Sand (>75 µm)	----	1	%	----	----	46	----	----
Gravel (>2mm)	----	1	%	----	----	26	----	----
Cobbles (>6cm)	----	1	%	----	----	<1	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	No	No
Asbestos Type	1332-21-4	-	--	-	-	----	-	-
Sample weight (dry)	----	0.01	g	962	684	----	786	970
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	----	S.SPOONER	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.962	0.684	----	0.786	0.970
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	<0.1	<0.1
Fibrous Asbestos	----	0.002	g	<0.002	<0.002	----	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	----	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	----	<0.001	<0.001





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MWB3A_0.35	VT_MW01_0.2	VT_MW01_1.0	VT_MW03B_0.5	VI_MW02_0.3
				21-MAR-2014 08:35	21-MAR-2014 09:30	21-MAR-2014 09:50	21-MAR-2014 10:40	21-MAR-2014 12:20
Compound	CAS Number	LOR	Unit	ES1406339-001	ES1406339-002	ES1406339-003	ES1406339-004	ES1406339-005
<b>EA200Q: Asbestos Quantification (non-NATA) - Continued</b>								
Trace Asbestos Detected	----	5	Fibres	No	No	----	No	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	2.6	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.3	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	<0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.2	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	3.1	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	<0.1	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	<5	----
Barium	7440-39-3	10	mg/kg	10	100	----	<10	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	<1	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	<50	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	9	23	----	13	----
Cobalt	7440-48-4	2	mg/kg	<2	7	----	<2	----
Copper	7440-50-8	5	mg/kg	<5	102	----	<5	----
Lead	7439-92-1	5	mg/kg	6	138	----	30	----
Manganese	7439-96-5	5	mg/kg	25	274	----	13	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	<2	----
Nickel	7440-02-0	2	mg/kg	2	11	----	<2	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	<5	----
Vanadium	7440-62-2	5	mg/kg	30	21	----	16	----
Zinc	7440-66-6	5	mg/kg	11	1430	----	11	----
Thallium	7440-28-0	5	mg/kg	<5	<5	----	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	----	<0.1	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	----	0.33	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MWB3A_0.35	VT_MW01_0.2	VT_MW01_1.0	VT_MW03B_0.5	VI_MW02_0.3
				21-MAR-2014 08:35	21-MAR-2014 09:30	21-MAR-2014 09:50	21-MAR-2014 10:40	21-MAR-2014 12:20
Compound	CAS Number	LOR	Unit	ES1406339-001	ES1406339-002	ES1406339-003	ES1406339-004	ES1406339-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MWB3A_0.35	VT_MW01_0.2	VT_MW01_1.0	VT_MW03B_0.5	VI_MW02_0.3
				21-MAR-2014 08:35	21-MAR-2014 09:30	21-MAR-2014 09:50	21-MAR-2014 10:40	21-MAR-2014 12:20
Compound	CAS Number	LOR	Unit	ES1406339-001	ES1406339-002	ES1406339-003	ES1406339-004	ES1406339-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.4	76.5	----	94.5	----
2-Chlorophenol-D4	93951-73-6	0.1	%	88.3	87.0	----	98.8	----
2,4,6-Tribromophenol	118-79-6	0.1	%	81.0	65.1	----	77.5	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	79.6	99.6	----	86.8	----
Anthracene-d10	1719-06-8	0.1	%	88.3	99.8	----	89.3	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.7	109	----	96.2	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	132	----	107	----
Toluene-D8	2037-26-5	0.1	%	110	116	----	122	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	112	----	122	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW02_0.5	VI_MW02_1.7	SS01_GP	TRIP SPIKE	BLK
				21-MAR-2014 12:30	21-MAR-2014 12:45	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406339-006	ES1406339-007	ES1406339-009	ES1406339-010	ES1406339-011
<b>EA150: Particle Sizing</b>								
+75µm	----	1	%	----	58	----	----	----
+150µm	----	1	%	----	46	----	----	----
+300µm	----	1	%	----	34	----	----	----
+425µm	----	1	%	----	23	----	----	----
+600µm	----	1	%	----	17	----	----	----
+1180µm	----	1	%	----	12	----	----	----
+2.36mm	----	1	%	----	9	----	----	----
+4.75mm	----	1	%	----	6	----	----	----
+9.5mm	----	1	%	----	5	----	----	----
+19.0mm	----	1	%	----	<1	----	----	----
+37.5mm	----	1	%	----	<1	----	----	----
+75.0mm	----	1	%	----	<1	----	----	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	6.1	4.0	----	----	----
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	89	184	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	10.0	22.0	----	----	----
<b>EA150: Soil Classification based on Particle Size</b>								
Fines (<75 µm)	----	1	%	----	42	----	----	----
Sand (>75 µm)	----	1	%	----	50	----	----	----
Gravel (>2mm)	----	1	%	----	9	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	35.4	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	----	----
<b>ED007: Exchangeable Cations</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW02_0.5	VI_MW02_1.7	SS01_GP	TRIP SPIKE	BLK
				21-MAR-2014 12:30	21-MAR-2014 12:45	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406339-006	ES1406339-007	ES1406339-009	ES1406339-010	ES1406339-011
<b>ED007: Exchangeable Cations - Continued</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	0.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	<0.1	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.4	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	1.2	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	----	0.1	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	4	5	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	<5	6	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	2	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
Total Organic Carbon	----	0.02	%	----	0.06	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW02_0.5	VI_MW02_1.7	SS01_GP	TRIP SPIKE	BLK
				21-MAR-2014 12:30	21-MAR-2014 12:45	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406339-006	ES1406339-007	ES1406339-009	ES1406339-010	ES1406339-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VI_MW02_0.5	VI_MW02_1.7	SS01_GP	TRIP SPIKE	BLK
				21-MAR-2014 12:30	21-MAR-2014 12:45	18-MAR-2014 15:00	18-MAR-2014 15:00	18-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406339-006	ES1406339-007	ES1406339-009	ES1406339-010	ES1406339-011
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	0.5	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	15.7	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	1.9	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	9.0	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	3.8	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	12.8	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	30.9	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	85.3	97.4	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	89.2	97.2	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	79.0	84.5	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.1	99.1	----	----	----
Anthracene-d10	1719-06-8	0.1	%	88.9	97.5	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	94.3	97.9	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	127	----	87.4	91.3
Toluene-D8	2037-26-5	0.1	%	115	107	----	99.8	112
4-Bromofluorobenzene	460-00-4	0.1	%	112	112	----	98.2	112



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				TSC	----	----	----	----
				18-MAR-2014 15:00	----	----	----	----
				ES1406339-012	----	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.7	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	19.1	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	2.3	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.8	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	4.6	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	15.4	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	37.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	131	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	105	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	----	----	----	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_210314\_GP

---

---

---

---

Client sampling date / time

21-MAR-2014 12:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406339-008	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_210314\_GP

---

---

---

---

Client sampling date / time

21-MAR-2014 12:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406339-008	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>R01_210314_GP</b>	----	----	----	----
----------------------	------	------	------	------

Client sampling date / time

21-MAR-2014 12:00	----	----	----	----
-------------------	------	------	------	------

Compound	CAS Number	LOR	Unit	ES1406339-008	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EP075(SIM)S: Phenolic Compound Surrogates - Continued

<b>Phenol-d6</b>	13127-88-3	0.1	%	<b>21.8</b>	----	----	----	----
<b>2-Chlorophenol-D4</b>	93951-73-6	0.1	%	<b>47.9</b>	----	----	----	----
<b>2,4,6-Tribromophenol</b>	118-79-6	0.1	%	<b>38.9</b>	----	----	----	----

### EP075(SIM)T: PAH Surrogates

<b>2-Fluorobiphenyl</b>	321-60-8	0.1	%	<b>59.5</b>	----	----	----	----
<b>Anthracene-d10</b>	1719-06-8	0.1	%	<b>64.5</b>	----	----	----	----
<b>4-Terphenyl-d14</b>	1718-51-0	0.1	%	<b>63.0</b>	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>90.6</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>94.2</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>96.4</b>	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VT_MWB3A_0.35 - 21-MAR-2014 08:35	Mid yellow - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VT_MW01_0.2 - 21-MAR-2014 09:30	Mid grey - brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VT_MW03B_0.5 - 21-MAR-2014 10:40	Mid yellow - brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VI_MW02_0.3 - 21-MAR-2014 12:20	Mid orange clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	SS01_GP - 18-MAR-2014 15:00	One piece of organic fibre board approximately 100 x 75 x 5 mm.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406339</b>	Page	: 1 of 16
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 24-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: GP	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Hamish Murray	Supervisor - Soils	Newcastle - Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3365943)</b>									
ES1406229-021	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.2	6.2	0.0	0% - 20%
ES1406306-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.1	0.0	0% - 20%
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3360715)</b>									
ES1406140-009	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	536	597	10.8	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3367098)</b>									
EP1402229-040	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	8.6	5.2	49.7	No Limit
ES1406358-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.3	9.4	0.0	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3360128)</b>									
ES1406339-003	VT_MW01_1.0	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.6	2.8	7.4	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.1	3.3	6.8	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3368137)</b>									
ES1406339-001	VT_MWB3A_0.35	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	8	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	25	22	15.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	30	26	15.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	11	13	17.8	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES1406664-005	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	130	150	10.6	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	26	24	9.8	0% - 50%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3368137) - continued</b>											
ES1406664-005	Anonymous	EG005T: Cobalt	7440-48-4	2	mg/kg	16	20	20.4	No Limit		
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit		
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	0.0	No Limit		
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	12	11	0.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	29	26	9.6	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	1240	1190	4.8	0% - 20%		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	63	54	14.8	0% - 50%		
		EG005T: Zinc	7440-66-6	5	mg/kg	33	34	0.0	No Limit		
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit				
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3368138)</b>											
ES1406339-001	VT_MWB3A_0.35	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1406664-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3363188)</b>											
EM1402801-005	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.23	0.24	0.0	0% - 50%		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3359046)</b>											
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406358-004	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3359046) - continued</b>									
ES1406358-004	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3359046)</b>									
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406358-004	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3359046) - continued</b>										
ES1406358-004	Anonymous	EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406341-006	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3359045)</b>										
ES1406339-001	VT_MWB3A_0.35	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1406358-004	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406341-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3359045)</b>										
ES1406339-001	VT_MWB3A_0.35	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406358-004	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406341-006	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>Sub-Matrix: WATER</b>										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3368097)</b>										



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3368097) - continued</b>										
ES1406248-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.004	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.010	0.011	0.0	0% - 50%	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.027	0.019	37.4	No Limit	
ES1406623-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0004	119	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.005	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	22.2	No Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3360844)</b>										
ES1406339-008	R01_210314_GP	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406325-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	190	180	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406325-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	200	190	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1406325-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3360715)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	99.4	96	104	
<b>ED007: Exchangeable Cations (QCLot: 3360128)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3368137)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	110	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	106	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.6	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	103	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	102	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	104	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	102	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	107	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	94.8	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	112	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	76.9	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3368138)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.1	70	105	
<b>EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3363188)</b>									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.11 %	101	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359046)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	106	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	104	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	99.4	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	114	69	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359046) - continued</b>									
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	88.2	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	99.4	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	92.8	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	90.0	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	96.0	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	58.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	79.1	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	11.5	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3359046)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	100	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	98.5	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	98.9	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	99.0	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	100	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	102	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	95.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	101	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	97.1	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	107	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	91.2	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	85.4	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.2	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	82.9	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359041)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	109	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359045)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	86.4	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	98.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359041)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359045)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	88.3	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	108	63	131	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3359041)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	106	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	112	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	103	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	108	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.0	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3368097)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	115	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	109	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	108	84	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	114	77	117	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360844)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359971)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	68.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	67.7	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	55.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	66.3	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	68.6	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.3	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.6	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	70.0	63	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359971) - continued</b>									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	66.9	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	27.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3359971)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	69.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	69.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	67.7	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.8	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	71.7	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	71.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	78.9	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	84.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	82.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	83.0	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	81.8	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	98.7	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	81.4	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	80.1	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	83.2	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	82.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359974)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	90.7	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.7	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	104	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361102)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.9	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359974)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.0	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	87.6	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	104	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361102)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	77.9	75	127
<b>EP080: BTEXN (QCLot: 3361102)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.9	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	76.7	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	82.9	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	81.2	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	84.3	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	84.8	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3368137)</b>							
ES1406339-001	VT_MWB3A_0.35	EG005T: Arsenic	7440-38-2	50 mg/kg	99.3	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.9	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	97.8	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3368138)</b>							





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3368138) - continued</b>								
ES1406339-001	VT_MWB3A_0.35	EG035T: Mercury	7439-97-6	5 mg/kg	97.9	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359046)</b>								
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.9	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.0	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	79.8	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	32.6	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3359046)</b>								
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.1	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.3	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359041)</b>								
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C9 Fraction	----	32.5 mg/kg	126	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359045)</b>								
ES1406339-001	VT_MWB3A_0.35	EP071: C10 - C14 Fraction	----	640 mg/kg	110	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.1	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359041)</b>								
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	122	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359045)</b>								
ES1406339-001	VT_MWB3A_0.35	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	125	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.7	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	73.6	52	132	
<b>EP080: BTEXN (QCLot: 3359041)</b>								
ES1406339-001	VT_MWB3A_0.35	EP080: Benzene	71-43-2	2.5 mg/kg	108	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	106	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	106	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	108	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3368097)</b>							
ES1406339-008	R01_210314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	121	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3368097) - continued</b>								
ES1406339-008	R01_210314_GP	EG020A-T: Chromium	7440-47-3	1 mg/L	114	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	112	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	121	70	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	112	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	113	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360844)</b>								
ES1406360-006	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	90.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361102)</b>								
ES1406227-010	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.8	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361102)</b>								
ES1406227-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	80.4	70	130	
<b>EP080: BTEXN (QCLot: 3361102)</b>								
ES1406227-010	Anonymous	EP080: Benzene	71-43-2	25 µg/L	74.0	70	130	
		EP080: Toluene	108-88-3	25 µg/L	79.0	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	76.0	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	76.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	76.7	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	89.7	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C9 Fraction	----	32.5 mg/kg	126	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	122	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3359041)</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: Benzene	71-43-2	2.5 mg/kg	108	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	106	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	106	----	70	130	----	----
			106-42-3							



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3359041) - continued</b>										
ES1406339-001	VT_MWB3A_0.35	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	108	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3359045)</b>										
ES1406339-001	VT_MWB3A_0.35	EP071: C10 - C14 Fraction	----	640 mg/kg	110	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	87.2	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	81.1	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3359045)</b>										
ES1406339-001	VT_MWB3A_0.35	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	125	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.7	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	73.6	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3359046)</b>										
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.9	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	86.4	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	79.8	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	32.6	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3359046)</b>										
ES1406339-001	VT_MWB3A_0.35	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.1	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.3	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3368137)</b>										
ES1406339-001	VT_MWB3A_0.35	EG005T: Arsenic	7440-38-2	50 mg/kg	99.3	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	97.9	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	102	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	94.4	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	97.8	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	106	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3368138)</b>										
ES1406339-001	VT_MWB3A_0.35	EG035T: Mercury	7439-97-6	5 mg/kg	97.9	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360844)</b>										
ES1406360-006	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	90.8	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.8	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	80.4	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3361102)</b>										
ES1406227-010	Anonymous	EP080: Benzene	71-43-2	25 µg/L	74.0	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	79.0	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	76.0	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	76.3	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	76.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	89.7	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3368097)</b>										
ES1406339-008	R01_210314_GP	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	121	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	114	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	112	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	121	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	112	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	113	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406339</b>	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 24-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: GP	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
Soil Glass Jar - Unpreserved (EA002) VT_MW01_1.0, VI_MW02_1.7	VI_MW02_0.5,	21-MAR-2014	31-MAR-2014	28-MAR-2014	*	28-MAR-2014	31-MAR-2014	✓
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Soil Glass Jar - Unpreserved (EA032) VI_MW02_0.5,	VI_MW02_1.7	21-MAR-2014	----	----	----	27-MAR-2014	17-SEP-2014	✓
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	----	----	----	31-MAR-2014	04-APR-2014	✓
<b>EA150: Particle Sizing</b>								
Snap Lock Bag (EA150) VT_MW01_1.0,	VI_MW02_1.7	21-MAR-2014	---	17-SEP-2014	----	02-APR-2014	28-SEP-2014	✓
<b>EA150: Soil Classification based on Particle Size</b>								
Snap Lock Bag (EA150) VT_MW01_1.0,	VI_MW02_1.7	21-MAR-2014	---	17-SEP-2014	----	02-APR-2014	28-SEP-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Snap Lock Bag (EA200) SS01_GP		18-MAR-2014	---	14-SEP-2014	----	04-APR-2014	01-OCT-2014	✓
Snap Lock Bag (EA200) VT_MWB3A_0.35, VT_MW03B_0.5,	VT_MW01_0.2, VI_MW02_0.3	21-MAR-2014	---	17-SEP-2014	----	04-APR-2014	01-OCT-2014	✓
<b>ED007: Exchangeable Cations</b>								
Soil Glass Jar - Unpreserved (ED007) VT_MW01_1.0,	VI_MW02_1.7	21-MAR-2014	27-MAR-2014	18-APR-2014	✓	28-MAR-2014	18-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	01-APR-2014	17-SEP-2014	✓	01-APR-2014	17-SEP-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	01-APR-2014	18-APR-2014	✓	03-APR-2014	18-APR-2014	✓
<b>EP003: Total Organic Carbon (TOC) in Soil</b>								
<b>Pulp Bag (EP003)</b> VT_MW01_1.0,	VI_MW02_1.7	21-MAR-2014	28-MAR-2014	18-APR-2014	✓	29-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	31-MAR-2014	04-APR-2014	✓	31-MAR-2014	10-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	31-MAR-2014	04-APR-2014	✓	31-MAR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	31-MAR-2014	04-APR-2014	✓	31-MAR-2014	10-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> TRIP SPIKE, TSC	BLK,	18-MAR-2014	27-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	30-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> BLK		18-MAR-2014	27-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VT_MWB3A_0.35, VT_MW03B_0.5, VI_MW02_1.7	VT_MW01_0.2, VI_MW02_0.5,	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	30-MAR-2014	04-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_210314_GP	21-MAR-2014	01-APR-2014	17-SEP-2014	✓	01-APR-2014	17-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_210314_GP	21-MAR-2014	----	----	----	27-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_210314_GP	21-MAR-2014	26-MAR-2014	28-MAR-2014	✓	27-MAR-2014	05-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_210314_GP	21-MAR-2014	26-MAR-2014	28-MAR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_210314_GP	21-MAR-2014	26-MAR-2014	28-MAR-2014	✓	28-MAR-2014	05-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_210314_GP	21-MAR-2014	28-MAR-2014	04-APR-2014	✓	28-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_210314_GP	21-MAR-2014	28-MAR-2014	04-APR-2014	✓	28-MAR-2014	04-APR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	21	9.5	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	21	4.8	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	21	4.8	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	21	4.8	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.



Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	5	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	5	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis (Sieving)	EA150	SOIL	Particle Size Analysis by Sieving according to AS1289.3.6.1 - 2009
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO <sub>2</sub> ) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EA002 : pH (Soils)</b>						
Soil Glass Jar - Unpreserved VT_MW01_1.0, VI_MW02_1.7	VI_MW02_0.5	31-MAR-2014	28-MAR-2014	3	----	----

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
Total Metals by ICP-AES	2	21	9.5	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>					
Total Metals by ICP-AES	1	21	4.8	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>					
Total Metals by ICP-AES	1	21	4.8	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
Total Metals by ICP-AES	1	21	4.8	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**



Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	6	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	5	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	6	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	5	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406339**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : GP</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 24-MAR-2014</b></p> <p><b>Client Requested Due Date : 03-APR-2014</b></p>	<p><b>Issue Date : 26-MAR-2014 09:16</b></p> <p><b>Scheduled Reporting Date : <b>03-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.2°C - Ice present</b></p> <p><b>No. of samples received : 12</b></p> <p><b>No. of samples analysed : 12</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- TOC analysis will be subcontracted to ALS Brisbane.
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos and PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EA200N)	SOIL - EA200N Asbestos Quantitation by WANEPM Guidelines -	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP080 BTEXN
ES1406339-001	21-MAR-2014 08:35	VT_MWB3A_0.35				✓		✓		
ES1406339-002	21-MAR-2014 09:30	VT_MW01_0.2				✓		✓		
ES1406339-003	21-MAR-2014 09:50	VT_MW01_1.0	✓		✓		✓		✓	
ES1406339-004	21-MAR-2014 10:40	VT_MW03B_0.5				✓		✓		
ES1406339-005	21-MAR-2014 12:20	VI_MW02_0.3				✓				
ES1406339-006	21-MAR-2014 12:30	VI_MW02_0.5	✓	✓						
ES1406339-007	21-MAR-2014 12:45	VI_MW02_1.7	✓	✓	✓		✓		✓	
ES1406339-009	18-MAR-2014 15:00	SS01_GP				✓				
ES1406339-010	18-MAR-2014 15:00	TRIP SPIKE								✓
ES1406339-012	18-MAR-2014 15:00	TSC								✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406339-001	21-MAR-2014 08:35	VT_MWB3A_0.35	✓		✓	
ES1406339-002	21-MAR-2014 09:30	VT_MW01_0.2	✓		✓	
ES1406339-004	21-MAR-2014 10:40	VT_MW03B_0.5	✓		✓	
ES1406339-006	21-MAR-2014 12:30	VI_MW02_0.5				✓
ES1406339-007	21-MAR-2014 12:45	VI_MW02_1.7				✓
ES1406339-011	18-MAR-2014 15:00	BLK		✓		





Laboratory sample ID	Client sampling date / time	Client sample ID	Matrix: WATER
ES1406339-008	21-MAR-2014 12:00	R01_210314_GP	WATER - W-27T TRH/BTEX/NPAH/Phenols/Total 8 Metals

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV ) Email Symphony.deltanorth@erm.com
- Attachment - Report ( SUBCO ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB ) Email Symphony.deltanorth@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

GADELAIDE 21 Burma Road Pootah SA 5095  
Ph: 08 8358 0890 E: aead@alsglobal.com  
DURRIBANE 32 Strand Street, Stafford QLD 4053  
Ph: 07 3243 7222 E: samples.la@alsglobal.com  
GILDRISTONE 48 Callendar Drive Clifton QLD 4030  
Ph: 07 7471 8600 E: glaclone@alsglobal.com

CMACKAY 78 Harbour Road Hatfield QLD 4740  
Ph: 07 464 0177 E: cmackay@alsglobal.com  
DUNEBOURNE 24 Wexall Road Springvale VIC 3171  
Ph: 03 8519 9600 E: samples.melbourne@alsglobal.com  
CHIDSGEE 27 Sydney Road Mudgee NSW 2850  
Ph: 02 8572 8735 E: mudgee@mail@alsglobal.com

SYDNEY 272 289 Woodside Road, Springfield NSW 2164  
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com  
TOWNSVILLE 44-15 Deans Court Beulah QLD 4818  
Ph: 07 4796 0660 E: townsville.environmental@alsglobal.com  
DUNEDIN 59 Kaitiaki Street, Wellington NSW 2500  
Ph: 02 4225 8125 E: portmanning@alsglobal.com

**CLIENT:** ERM

**OFFICE:** PYRMONT

**PROJECT:** VALES POINT POWER STATION

**ORDER NUMBER:** 0237747

**PROJECT MANAGER:** JOHN EWING

**SAMPLER:** John Ewing

**COC emailed to ALS?** ( YES / NO )

**RELINQUISHED BY:** [Signature]

**DATE/TIME:** 28/3/14 19:00

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date);  Non Standard or urgent TAT (List due date):

**FOR LABORATORY USE ONLY (CIT&C)**

**COC SEQUENCE NUMBER (Circle)** 1 2 3 4 5 6 7

**OF:** 1 2 3 4 5 6 7

**RELINQUISHED BY:** [Signature]

**DATE/TIME:** 28/3/14 19:00

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required).													Additional Information
						13 METALS (S-3) + B. Mo, Tl, Se	8 METALS (S-2)	TPH/TEX/PAH	PHENOLS (S-24)	ASBESTOS	VOC	PFOS/PFOA	PH/EC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals		
1	VI-MMW03a-0.35	18/3/14 0835	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X	X	Environmental Division Sydney Work Order <b>ES1406339</b>  Telephone : + 61-2-8784 8555		
2	VI-MMW01-0.2	18/3/14 0930	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X				
3	VI-MMW01-1.6	18/3/14 0950	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X				
4	VI-MMW03b-0.5	18/3/14 1040	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X				
5	VI-MMW02-0.3	18/3/14 1120	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X				
6	VI-MMW02-0.5	18/3/14 1230	s	1 x jar, Bag	2	X	X	X	X	X	X	X	X	X	X				
7	VI-MMW02-1.7	18/3/14 1245	s	1 x jar, Bag	3	X	X	X	X	X	X	X	X	X	X				
8	RAI-210314-GP	18/3/14 1700	s	2 x V, N, AC	4	X	X	X	X	X	X	X	X	X	X				
9	SS01-CF	18/3/14	s	B	1	X	X	X	X	X	X	X	X	X	X				
10	TRIP SPIKE	18/3/14	s	1 x jar	1	X	X	X	X	X	X	X	X	X	X				
11	BLK		s	1 x jar	1	X	X	X	X	X	X	X	X	X	X				
12	TSC		s	1 x jar	1	X	X	X	X	X	X	X	X	X	X				
<b>TOTAL</b>																			

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Ca Preserved; S = Sodium Hydroxide/Ca Preserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulphuric Preserved; AV = Airright Unpreserved Vial SG = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; L = L (preserved) Plastic; L9 = L9 (preserved) Plastic; SP = Spilling Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; ASS = Plastic Bag for Acid Substrate Solids; B = Unpreserved Bag.

Organised By / Date: [Signature] / 18/3/14  
Relinquished By / Date: [Signature] / 18/3/14

Missing platform coc carried in project BTEX only  
THH66-Cat BTEX

please analyse for -  
ABOXSKY/PSD  
JES-LECOB.

WU N.A. ES1406339  
Attached By PO / Internal Sheet: [Signature]

# Certificate of Analysis

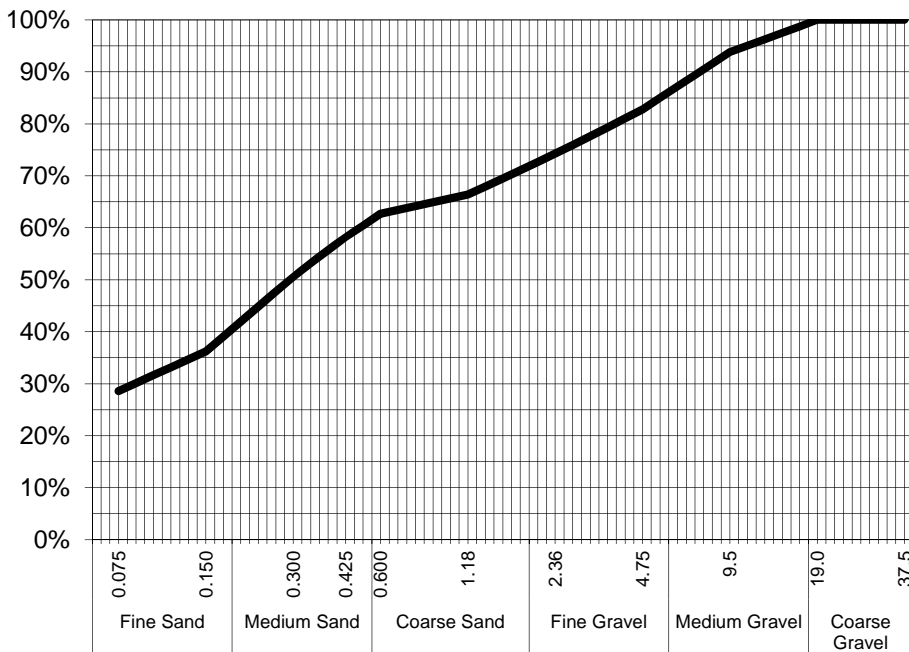
ALS Laboratory Group Pty Ltd  
 5/585 Maitland Road  
 Mayfield West, NSW 2304  
 pH 02 4014 2500  
 fax 02 4968 0349  
 samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 2-Apr-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 24-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406339-003 / PSD  
 33 Saunders Street, Pyrmont  
 NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VT\_MW01\_1.0

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	94%
4.75	83%
2.36	74%
1.18	66%
0.600	63%
0.425	58%
0.300	51%
0.150	36%
0.075	29%

Samples analysed as received.

### Sample Comments:

**Analysed:** 31-Mar-14

**Loss on Pretreatment:** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand, fines and gravel

**Test Method:** AS1289.3.6.1

**Hydrometer Type:** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
 This document is issued in accordance with NATA's accreditation requirements.  
 Accredited for compliance with ISO/IEC 17025. This document shall not be  
 reproduced, except in full.



**Hamish Murray**  
 Laboratory Supervisor, Newcastle  
**Authorised Signatory**

# Certificate of Analysis

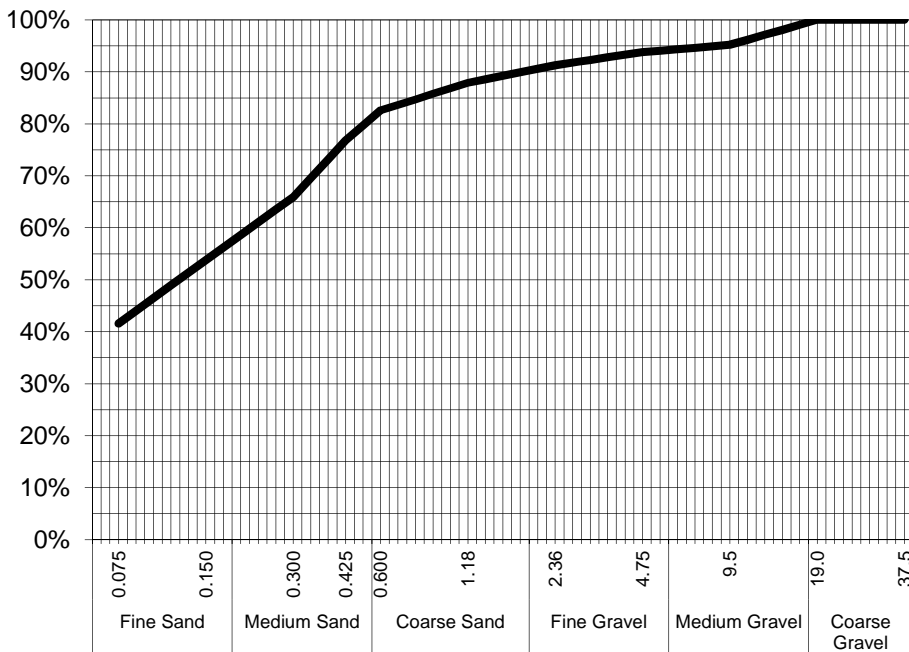
ALS Laboratory Group Pty Ltd  
5/585 Maitland Road  
Mayfield West, NSW 2304  
ph 02 4014 2500  
fax 02 4968 0349  
samples.newcastle@alsenviro.com

**ALS Environmental**  
**Newcastle, NSW**



**CLIENT:** John Ewing **DATE REPORTED:** 2-Apr-2014  
**COMPANY:** Enviro Resources Management **DATE RECEIVED:** 24-Mar-2014  
**ADDRESS:** Ground Floor **REPORT NO:** ES1406339-007 / PSD  
33 Saunders Street, Pyrmont  
NSW 2009  
**PROJECT:** Vales Point Power Station **SAMPLE ID:** VI\_MW02\_1.7

## Particle Size Distribution



Particle Size (mm)	Percent Passing
19.0	100%
9.5	95%
4.75	94%
2.36	91%
1.18	88%
0.600	83%
0.425	77%
0.300	66%
0.150	54%
0.075	42%

Samples analysed as received.

## Sample Comments:

**Analysed:** 31-Mar-14

**Loss on Pretreatment** NA

**Limit of Reporting:** 1%

**Sample Description:** Sand and fines

**Test Method:** AS1289.3.6.1

**Hydrometer Type** ASTM E100

**NATA Accreditation: 825 Site: Newcastle**  
This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.



**Hamish Murray**  
Laboratory Supervisor, Newcastle  
**Authorised Signatory**

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406497</b>	Page	: 1 of 15
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 03-APR-2014
Sampler	: SB	No. of samples received	: 10
Site	: ----	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080;** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	4.3	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	----	13.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	Yes	No	----	No
Asbestos Type	1332-21-4	-	--	Ch + Am	Am	-	----	-
Sample weight (dry)	----	0.01	g	567	342	336	----	604
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.567	0.342	0.336	----	0.604
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	0.002	<0.002	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.001	<0.001	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	No	No	----	No
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	0.8	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	2.5	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	<0.1	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	0.3	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	3.6	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	<0.1	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	6	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	----	18	----
Copper	7440-50-8	5	mg/kg	----	----	----	<5	----
Lead	7439-92-1	5	mg/kg	----	----	----	5	----
Nickel	7440-02-0	2	mg/kg	----	----	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	----	----	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	<0.1	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	----	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	----	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	<b>1.2</b>	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	----	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	----	<b>83.9</b>	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	<b>77.6</b>	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	<b>70.3</b>	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	<b>98.4</b>	----
Anthracene-d10	1719-06-8	0.1	%	----	----	----	<b>96.4</b>	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	<b>89.2</b>	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	<b>93.5</b>	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	----	----	----	92.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	95.2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW17_0.4	TRIP SPIKE 3	TRIP BLANK 7	TSC3	----
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406497-006	ES1406497-007	ES1406497-008	ES1406497-010	----
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.9	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.4	----	----	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	3.5	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	2.2	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	0.2	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.3	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	6.1	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	12	----	----	----	----
Barium	7440-39-3	10	mg/kg	160	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	6	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	10	----	----	----	----
Lead	7439-92-1	5	mg/kg	14	----	----	----	----
Manganese	7439-96-5	5	mg/kg	181	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	16	----	----	----	----
Zinc	7440-66-6	5	mg/kg	59	----	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VO_MW17_0.4	TRIP SPIKE 3	TRIP BLANK 7	TSC3	----
Client sampling date / time				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406497-006	ES1406497-007	ES1406497-008	ES1406497-010	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<b>0.6</b>	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<b>1.4</b>	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<b>1.4</b>	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<b>0.5</b>	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<b>0.7</b>	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<b>0.9</b>	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<b>6.1</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<b>1.0</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>1.3</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.6</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW17_0.4	TRIP SPIKE 3	TRIP BLANK 7	TSC3	----
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406497-006	ES1406497-007	ES1406497-008	ES1406497-010	----
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	0.5	<0.2	0.6	----
Toluene	108-88-3	0.5	mg/kg	<0.5	14.6	<0.5	18.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1.6	<0.5	2.2	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	8.4	<0.5	11.0	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	3.2	<0.5	4.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	11.6	<0.5	15.2	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	28.3	<0.2	36.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	83.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	81.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	67.1	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	82.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	72.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	80.5	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.9	92.9	128	92.8	----
Toluene-D8	2037-26-5	0.1	%	96.0	96.6	92.9	93.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.6	93.1	94.0	89.5	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406497-009	---	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	---	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	---	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	---	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	---	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	---	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	---	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	---	---	---	---
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	---	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	---	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	---	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	---	---	---	---
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	---	---	---	---
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	---	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	---	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	---	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	---	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	---	---	---	---
<b>EP074E: Halogenated Aliphatic Compounds</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406497-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP074E: Halogenated Aliphatic Compounds - Continued

Dichlorodifluoromethane	75-71-8	50	µg/L	<50	---	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	---	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	---	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	---	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	---	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	---	---	---	---

### EP074F: Halogenated Aromatic Compounds

Chlorobenzene	108-90-7	5	µg/L	<5	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	---	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	---	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406497-009	---	---	---	---
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	---	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	---	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	---	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	---	---	---	---
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	---	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	---	---	---	---
Bromoform	75-25-2	5	µg/L	<5	---	---	---	---
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406497-009	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_240314\_JE**

----

----

----

----

Client sampling date / time

24-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406497-009	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	117	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	16.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	42.4	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	50.0	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	54.1	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	57.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	54.4	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	108	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VQ_SB11_0.2 - 24-MAR-2014 15:00	Mid grey sandy soil with grey, orange and red rocks plus some slag grains with several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm.
EA200: Description	VQ_SB12_0.2 - 24-MAR-2014 15:00	Mid grey sandy soil with grey rocks and plenty of slag grains plus two loose bundles of friable asbestos fibres approximately 3 x 1 x 0.5 mm.
EA200: Description	VQ_SB10_0.2 - 24-MAR-2014 15:00	Mid grey sandy soil with grey rocks plus a trace of vegetation.
EA200: Description	VO_MW17_0.2 - 24-MAR-2014 15:00	Mid yellow - brown clay soil with grey and red rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406497</b>	Page	: 1 of 15
Amendment	: <b>(Preliminary Report)</b>		
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747		
C-O-C number	: ----	Date Samples Received	: 25-MAR-2014
Sampler	: SB	Issue Date	: 02-APR-2014 17:15
Site	: ----		
Quote number	: SY/050/14 V3	No. of samples received	: 10
		No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



Page : 2 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- EA200 Legend
EA200 'Am' Amosite (brown asbestos)
EA200 'Ch' Chrysotile (white asbestos)
EA200 'Cr' Crocidolite (blue asbestos)
EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
EP080; The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.



NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Table with 3 columns: Signatories, Position, Accreditation Category. Rows include Ashesh Patel (Inorganic Chemist), Edwandy Fadjar (Organic Coordinator), Pabi Subba (Senior Organic Chemist), Sanjeshni Jyoti Mala (Senior Chemist Volatile), Shobhna Chandra (Metals Coordinator), and Wisam Marassa (Inorganics Coordinator).

# (Preliminary Report)

Page : 3 of 15  
Work Order : ES1406497  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	4.3	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	----	13.3	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Asbestos Type	1332-21-4	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Sample weight (dry)	----	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
APPROVED IDENTIFIER:	----	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Asbestos Containing Material	1332-21-4	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Fibrous Asbestos	----	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
Trace Asbestos Detected	----	-	-	Not Authorised	Not Authorised	Not Authorised	----	Not Authorised
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	0.8	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	2.5	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	<0.1	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	0.3	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	3.6	----
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	<0.1	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	6	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	----	18	----
Copper	7440-50-8	5	mg/kg	----	----	----	<5	----
Lead	7439-92-1	5	mg/kg	----	----	----	5	----
Nickel	7440-02-0	2	mg/kg	----	----	----	<2	----
Zinc	7440-66-6	5	mg/kg	----	----	----	<5	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	<0.1	----

(Preliminary Report)



Page : 4 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, VQ\_SB11\_0.2, VQ\_SB12\_0.2, VQ\_SB10\_0.2, VU\_MW12\_1.0, VO\_MW17\_0.2. Rows include Phenolic Compounds (Phenol, Chlorophenol, Methylphenol, Nitrophenol, etc.) and Polynuclear Aromatic Hydrocarbons (Naphthalene, Acenaphthylene, Anthracene, etc.).

(Preliminary Report)



Page : 5 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns for Compound, CAS Number, LOR, Unit, and five sample IDs (VQ\_SB11\_0.2, VQ\_SB12\_0.2, VQ\_SB10\_0.2, VU\_MW12\_1.0, VO\_MW17\_0.2). Rows include various hydrocarbon fractions (C6-C9, C10-C14, etc.), recoverable hydrocarbons (NEPM 2013), BTEXN compounds (Benzene, Toluene, etc.), phenolic compound surrogates (Phenol-d6, etc.), PAH surrogates (2-Fluorobiphenyl, etc.), and TPH(BTEX) surrogates (1,2-Dichloroethane-D4).



(Preliminary Report)



Page : 6 of 15  
Work Order : ES1406497  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION

**Analytical Results**

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VQ_SB11_0.2	VQ_SB12_0.2	VQ_SB10_0.2	VU_MW12_1.0	VO_MW17_0.2
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406497-001	ES1406497-002	ES1406497-003	ES1406497-004	ES1406497-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	----	----	----	92.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	95.2	----

(Preliminary Report)

Page : 7 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, VO\_MW17\_0.4, TRIP SPIKE 3, TRIP BLANK 7, TSC3, and a blank column. Rows include pH (Soils), Moisture Content, Exchangeable Cations, Total Metals by ICP-AES, Total Recoverable Mercury by FIMS, and Phenolic Compounds.

(Preliminary Report)



Page : 8 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, VO\_MW17\_0.4, TRIP SPIKE 3, TRIP BLANK 7, TSC3, and a blank column. It contains data for Phenolic Compounds (EP075(SIM)A) and Polynuclear Aromatic Hydrocarbons (EP075(SIM)B), and Total Petroleum Hydrocarbons (EP080/071).

(Preliminary Report)



Page : 9 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, VO\_MW17\_0.4, TRIP SPIKE 3, TRIP BLANK 7, TSC3, and a blank column. Rows include sections for Total Petroleum Hydrocarbons, Total Recoverable Hydrocarbons, BTEXN, Phenolic Compound Surrogates, PAH Surrogates, and TPH(V)/BTEX Surrogates.

(Preliminary Report)

Page : 10 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Table header row with columns: Compound, CAS Number, LOR, Unit, and five empty columns.

EG020T: Total Metals by ICP-MS

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, and Zinc.

EG035T: Total Recoverable Mercury by FIMS

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Row includes Mercury.

EP074A: Monocyclic Aromatic Hydrocarbons

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Styrene, Isopropylbenzene, n-Propylbenzene, 1.3.5-Trimethylbenzene, sec-Butylbenzene, 1.2.4-Trimethylbenzene, tert-Butylbenzene, p-Isopropyltoluene, and n-Butylbenzene.

EP074B: Oxygenated Compounds

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Vinyl Acetate, 2-Butanone (MEK), 4-Methyl-2-pentanone (MIBK), and 2-Hexanone (MBK).

EP074C: Sulfonated Compounds

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Row includes Carbon disulfide.

EP074D: Fumigants

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include 2.2-Dichloropropane, 1.2-Dichloropropane, cis-1.3-Dichloropropylene, trans-1.3-Dichloropropylene, and 1.2-Dibromoethane (EDB).

EP074E: Halogenated Aliphatic Compounds

(Preliminary Report)



Page : 11 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

Client sampling date / time

24-MAR-2014 15:00

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank header row.

EP074E: Halogenated Aliphatic Compounds - Continued

Main data table listing various aliphatic compounds like Dichlorodifluoromethane, Chloromethane, Vinyl chloride, etc., with their respective CAS numbers, LOR values, units, and detection results.

EP074F: Halogenated Aromatic Compounds

Table listing aromatic compounds such as Chlorobenzene, Bromobenzene, 2-Chlorotoluene, 4-Chlorotoluene, and 1,3-Dichlorobenzene with their CAS numbers, LOR values, units, and results.

(Preliminary Report)

Page : 12 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Table header row with columns: Compound, CAS Number, LOR, Unit, and five empty columns.

EP074F: Halogenated Aromatic Compounds - Continued

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, and 1,2,3-Trichlorobenzene.

EP074G: Trihalomethanes

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Chloroform, Bromodichloromethane, Dibromochloromethane, and Bromoform.

EP074H: Naphthalene

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Row includes Naphthalene.

EP075(SIM)A: Phenolic Compounds

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Phenol, 2-Chlorophenol, 2-Methylphenol, 3- & 4-Methylphenol, 2-Nitrophenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, 2,6-Dichlorophenol, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, and Pentachlorophenol.

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Table with 9 columns: Compound, CAS Number, LOR, Unit, and five empty columns. Rows include Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene.

(Preliminary Report)



Page : 13 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

Client sampling date / time

24-MAR-2014 15:00

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank column. Row 1: ES1406497-009

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank column. Rows include Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1.2.3.cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene, Sum of polycyclic aromatic hydrocarbons, and Benzo(a)pyrene TEQ (zero).

EP080/071: Total Petroleum Hydrocarbons

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank column. Rows include C6 - C9 Fraction, C10 - C14 Fraction, C15 - C28 Fraction, C29 - C36 Fraction, and C10 - C36 Fraction (sum).

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank column. Rows include C6 - C10 Fraction, C6 - C10 Fraction minus BTEX (F1), >C10 - C16 Fraction, >C16 - C34 Fraction, >C34 - C40 Fraction, >C10 - C40 Fraction (sum), and >C10 - C16 Fraction minus Naphthalene (F2).

EP080: BTEXN

Table with 5 columns: Compound, CAS Number, LOR, Unit, and a blank column. Rows include Benzene, Toluene, Ethylbenzene, meta- & para-Xylene, ortho-Xylene, Total Xylenes, and Sum of BTEX.



(Preliminary Report)



Page : 14 of 15
Work Order : ES1406497
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_240314\_JE

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Table with columns: Compound, CAS Number, LOR, Unit, and numerical results.

EP080: BTEXN - Continued

Table row for Naphthalene with CAS Number 91-20-3, LOR 5, Unit µg/L, and result <5.

EP074S: VOC Surrogates

Table rows for VOC Surrogates: 1,2-Dichloroethane-D4, Toluene-D8, and 4-Bromofluorobenzene.

EP075(SIM)S: Phenolic Compound Surrogates

Table rows for Phenolic Compound Surrogates: Phenol-d6, 2-Chlorophenol-D4, and 2,4,6-Tribromophenol.

EP075(SIM)T: PAH Surrogates

Table rows for PAH Surrogates: 2-Fluorobiphenyl, Anthracene-d10, and 4-Terphenyl-d14.

EP080S: TPH(V)/BTEX Surrogates

Table rows for TPH(V)/BTEX Surrogates: 1,2-Dichloroethane-D4, Toluene-D8, and 4-Bromofluorobenzene.

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Table with columns: Method: Compound, Client sample ID - Client sampling date / time, and Analytical Results.



Page : 15 of 15  
Work Order : ES1406497  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION

**Surrogate Control Limits**

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406497</b>	Page	: 1 of 20
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 03-APR-2014
Sampler	: SB	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos
Shobhna Chandra	Metals Coordinator	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3363212)</b>									
ES1406307-016	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.9	8.0	0.0	0% - 20%
ES1406498-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	3.5	3.4	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3364051)</b>									
ES1406396-015	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	66.2	64.9	2.1	0% - 20%
ES1406494-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	14.0	4.8	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3363169)</b>									
ES1406239-038	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.0	1.7	12.5	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.2	0.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.4	2.1	12.3	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	0.3	0.2	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367730)</b>									
ES1406494-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	12	16.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406498-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367730) - continued</b>											
ES1406498-001	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	10	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	6	<5	24.6	No Limit		
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3367731)</b>											
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1406498-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361413)</b>											
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406497-006	VO_MW17_0.4	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361413)</b>											
ES1406239-001	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361413) - continued</b>									
ES1406239-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.1	1.2	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.1	1.2	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.8	0.9	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.2	1.2	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.6	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	0.6	28.5	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	0.5	18.1	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	0.8	0.6	20.9	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	8.5	7.6	11.2	0% - 50%
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	0.8	35.6	No Limit		
ES1406497-006	VO_MW17_0.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.4	1.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.4	1.4	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.5	0.6	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.7	0.8	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	0.6	0.7	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	6.1	7.6	21.9	0% - 50%		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.0	1.2	15.8	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361412)</b>									
ES1406239-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361412) - continued</b>										
ES1406497-006	VO_MW17_0.4	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3362233)</b>										
ES1406497-004	VU_MW12_1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406709-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361412)</b>										
ES1406239-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406497-006	VO_MW17_0.4	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3362233)</b>										
ES1406497-004	VU_MW12_1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406709-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3362233)</b>										
ES1406497-004	VU_MW12_1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
			95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406709-003	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>Sub-Matrix: <b>WATER</b></b>										
Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3363681)</b>										
ES1406398-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.004	124	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.002	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit	





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3363681) - continued</b>									
ES1406398-002	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.043	0.045	4.5	No Limit
ES1406398-010	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363125)</b>									
ES1406485-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406485-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364097) - continued</b>									
ES1406393-003	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit

Page : 9 of 20  
 Work Order : ES1406497  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074H: Naphthalene (QC Lot: 3364097)</b>									
ES1406393-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3364098)</b>									
ES1406393-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3364098)</b>									
ES1406393-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3364098)</b>									
ES1406393-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3363169)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	122	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	120	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	112	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	109	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	110	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	114	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	115	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	101	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.2	70	105	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	92.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	88.8	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	100	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	83.5	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	76.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	81.9	73	117	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413) - continued</b>								
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	76.4	114
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.6	57	111
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.9	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.7	10	57
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	81.4	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	86.6	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	88.0	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	94.6	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	96.0	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	93.1	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	97.3	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	89.3	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	92.6	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.7	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	101	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	119	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	106	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	109	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	103	72.4	114
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	92.4	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.2	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	111	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.6	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	97.7	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	111	63	131
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	110	68.4	128
<b>EP080: BTEXN (QCLot: 3362233)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.3	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.2	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.7	58	118



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3362233) - continued</b>									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	93.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.2	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.8	62	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363681)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.4	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.4	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.4	76	118	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.4	77	115	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3364097)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	100	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	103	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	104	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	105	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	107	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	102	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	107	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	102	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	101	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3364097)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	63.6	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.6	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.5	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	98.9	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3364097)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	111	72.8	127	
<b>EP074D: Fumigants (QCLot: 3364097)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	102	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	103	62	120	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3364097) - continued</b>									
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	97.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	106	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364097)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	131	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	120	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	129	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	108	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	132	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	117	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	86.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	105	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	107	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	108	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	108	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	103	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	111	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	112	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	111	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	106	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.2	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	109	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	76.8	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	74.9	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	100	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	106	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	104	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	103	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	99.6	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364097)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	103	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	108	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	95.8	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.0	77	117	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364097) - continued</b>									
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	90.6	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	103	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3364097)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	107	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	109	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	112	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	104	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3364097)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	108	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3362185)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	49.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	74.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	65.9	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	56.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	75.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	73.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	76.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	76.9	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	75.6	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	94.0	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	28.1	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3362185)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	71.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3362185) - continued</b>								
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	74.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	76.5	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	73.3	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	72.6	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	77.5	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	75.9	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.2	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	75.2	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	64.5	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	81.4	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	76.2	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	67.6	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.7	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	65.8	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362184)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.0	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.3	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	95.0	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364098)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.9	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362184)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	103	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.4	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	99.4	67	127



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364098)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.5	75	127	
<b>EP080: BTEXN (QCLot: 3364098)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	82.1	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	85.6	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	79.9	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	80.4	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	79.7	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	78.4	70	124	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>							
ES1406494-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	110	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	94.3	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>							
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.2	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>							
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	73.5	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	76.9	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	45.0	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>							
ES1406239-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	73.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	# 66.8	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412) - continued</b>								
ES1406239-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.1	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>								
ES1406497-004	VU_MW12_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>								
ES1406239-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.1	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>								
ES1406497-004	VU_MW12_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	70	130	
<b>EP080: BTEXN (QCLot: 3362233)</b>								
ES1406497-004	VU_MW12_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	104	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	107	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.8	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	91.6	70	130			

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363681)</b>							
ES1406398-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	109	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	108	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>							
ES1406485-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	# 50.5	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364097)</b>							
ES1406393-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	121	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	98.8	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364097)</b>							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364097) - continued</b>								
ES1406393-003	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	99.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364098)</b>								
ES1406393-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	89.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364098)</b>								
ES1406393-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.3	70	130	
<b>EP080: BTEXN (QCLot: 3364098)</b>								
ES1406393-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.0	70	130	
		EP080: Toluene	108-88-3	25 µg/L	73.7	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	74.4	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	80.2	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	85.5	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>										
ES1406239-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.2	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.1	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>										
ES1406239-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.1	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>										
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	73.5	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	76.9	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	45.0	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>										
ES1406239-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	73.5	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413) - continued</b>											
ES1406239-001	Anonymous	EP075(SIM): Pyrene	129-00-0	10 mg/kg	# 66.8	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>											
ES1406497-004	VU_MW12_1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>											
ES1406497-004	VU_MW12_1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3362233)</b>											
ES1406497-004	VU_MW12_1.0	EP080: Benzene	71-43-2	2.5 mg/kg	104	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	107	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.6	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>											
ES1406494-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.5	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	110	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	94.3	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>											
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.2	----	70	130	----	----	

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>										
ES1406485-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	# 50.5	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3363681)</b>										
ES1406398-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	109	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	109	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	108	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364097)</b>										
ES1406393-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	121	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	98.8	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364097)</b>										
ES1406393-003	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	99.8	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364098)</b>										
ES1406393-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	89.0	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364098)</b>										
ES1406393-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.3	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3364098)</b>										
ES1406393-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.0	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	73.7	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	74.4	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.5	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	80.2	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	85.5	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406497</b>	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 03-APR-2014
Sampler	: SB	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	31-MAR-2014	28-MAR-2014	*
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	----	----	----	28-MAR-2014	07-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
Snap Lock Bag (EA200) VQ_SB11_0.2, VQ_SB12_0.2, VO_MW17_0.2	24-MAR-2014	---	20-SEP-2014	----	03-APR-2014	30-SEP-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	31-MAR-2014	21-APR-2014	✓	31-MAR-2014	21-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	31-MAR-2014	20-SEP-2014	✓	01-APR-2014	20-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	31-MAR-2014	21-APR-2014	✓	02-APR-2014	21-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VU_MW12_1.0, VO_MW17_0.4	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) VU_MW12_1.0, VO_MW17_0.4, TRIP SPIKE 3, TRIP BLANK 7, TSC3	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW12_1.0, TRIP BLANK 7	VO_MW17_0.4	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	20-SEP-2014	✓	28-MAR-2014	20-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_240314_JE		24-MAR-2014	----	----	----	28-MAR-2014	21-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_240314_JE		24-MAR-2014	31-MAR-2014	31-MAR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R01_240314_JE		24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_240314_JE	24-MAR-2014	31-MAR-2014	31-MAR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_240314_JE	24-MAR-2014	31-MAR-2014	31-MAR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_240314_JE	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_240314_JE	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	28-MAR-2014	07-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP) - Continued</b>							
TPH - Semivolatile Fraction	EP071	0	6	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	7	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	6	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1406239-001	Anonymous	Pyrene	129-00-0	66.8 %	70-130%	Recovery less than lower data quality objective

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG035T: Total Recoverable Mercury by FIMS	ES1406485-002	Anonymous	Mercury	7439-97-6	50.5 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EA002 : pH (Soils)</b>						
Soil Glass Jar - Unpreserved VU_MW12_1.0, VO_MW17_0.4	----	----	----	31-MAR-2014	28-MAR-2014	3

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	3	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Page : 10 of 10  
 Work Order : ES1406497  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP) - Continued</b>					
TPH - Semivolatile Fraction	0	6	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	3	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	6	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1406497</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : VALES POINT POWER STATION</b> <b>Order number : 0237747</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : SB</b>	<b>Page : 1 of 3</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 25-MAR-2014</b> <b>Client Requested Due Date : 02-APR-2014</b>	<b>Issue Date : 27-MAR-2014 11:51</b> <b>Scheduled Reporting Date : 02-APR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 2 HARD</b> <b>Security Seal : Intact.</b>	<b>Temperature : 3.2°C - Ice present</b> <b>No. of samples received : 10</b> <b>No. of samples analysed : 10</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP080 BTEXN	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-24 TRH/BTEXN/PAH + Phenols
ES1406497-001	24-MAR-2014 15:00	VQ_SB11_0.2		✓						
ES1406497-002	24-MAR-2014 15:00	VQ_SB12_0.2		✓						
ES1406497-003	24-MAR-2014 15:00	VQ_SB10_0.2		✓						
ES1406497-004	24-MAR-2014 15:00	VU_MW12_1.0	✓		✓					
ES1406497-005	24-MAR-2014 15:00	VO_MW17_0.2		✓						
ES1406497-006	24-MAR-2014 15:00	VO_MW17_0.4	✓		✓	✓		✓		✓
ES1406497-007	24-MAR-2014 15:00	TRIP SPIKE 3					✓			
ES1406497-008	24-MAR-2014 15:00	TRIP BLANK 7							✓	
ES1406497-010	24-MAR-2014 15:00	TSC3					✓			

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-27 TRH/BTEXN/PAH/Phenols&Metals
ES1406497-004	24-MAR-2014 15:00	VU_MW12_1.0	✓



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-27T TRH/BTEX/NPAH/Phenols/Total 8 Metals
ES1406497-009	24-MAR-2014 15:00	R01_240314_JE	✓	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406498</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : CM <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 04-APR-2014  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 6
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
		Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
**Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).**  
**Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW08_1.8	D01_240314_CM	VO_MW08_0.1	VU_MW15_4.0	VL_MW01_3.0
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406498-001	ES1406498-002	ES1406498-003	ES1406498-004	ES1406498-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	3.5	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.5	11.8	----	21.1	15.7
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	309	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	0.309	----	----
Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----
Fibrous Asbestos	----	0.002	g	----	----	<0.002	----	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	<0.01	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	<0.001	----	----
Trace Asbestos Detected	----	5	Fibres	----	----	No	----	----
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	0.7	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	0.9	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	0.1	----	----	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	<10	<10	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	6	3	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	<2	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW08_1.8	D01_240314_CM	VO_MW08_0.1	VU_MW15_4.0	VL_MW01_3.0
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406498-001	ES1406498-002	ES1406498-003	ES1406498-004	ES1406498-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Manganese	7439-96-5	5	mg/kg	<5	<5	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	10	<5	----	----	----
Zinc	7440-66-6	5	mg/kg	6	<5	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	<5	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	----	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	7	9
Copper	7440-50-8	5	mg/kg	----	----	----	9	7
Lead	7439-92-1	5	mg/kg	----	----	----	<5	5
Nickel	7440-02-0	2	mg/kg	----	----	----	<2	<2
Zinc	7440-66-6	5	mg/kg	----	----	----	6	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	<0.1	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW08_1.8	D01_240314_CM	VO_MW08_0.1	VU_MW15_4.0	VL_MW01_3.0
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406498-001	ES1406498-002	ES1406498-003	ES1406498-004	ES1406498-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	<50
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW08_1.8	D01_240314_CM	VO_MW08_0.1	VU_MW15_4.0	VL_MW01_3.0
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406498-001	ES1406498-002	ES1406498-003	ES1406498-004	ES1406498-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	102	115	----	112	105
2-Chlorophenol-D4	93951-73-6	0.1	%	95.0	102	----	102	101
2,4,6-Tribromophenol	118-79-6	0.1	%	55.5	65.3	----	68.0	66.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.4	92.7	----	96.8	87.9
Anthracene-d10	1719-06-8	0.1	%	81.8	83.0	----	86.9	80.7
4-Terphenyl-d14	1718-51-0	0.1	%	105	90.9	----	103	89.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	123	124	----	106	100
Toluene-D8	2037-26-5	0.1	%	114	106	----	111	104
4-Bromofluorobenzene	460-00-4	0.1	%	110	102	----	95.5	89.9



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL\_MW03\_2.0

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406498-006	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EA055: Moisture Content

Moisture Content (dried @ 103°C)	---	1.0	%	13.3	---	---	---	---
----------------------------------	-----	-----	---	------	-----	-----	-----	-----

### EG005T: Total Metals by ICP-AES

Arsenic	7440-38-2	5	mg/kg	<5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg	4	---	---	---	---
Copper	7440-50-8	5	mg/kg	<5	---	---	---	---
Lead	7439-92-1	5	mg/kg	<5	---	---	---	---
Nickel	7440-02-0	2	mg/kg	<2	---	---	---	---
Zinc	7440-66-6	5	mg/kg	<5	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.1	mg/kg	<0.1	---	---	---	---
---------	-----------	-----	-------	------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	0.5	mg/kg	<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL\_MW03\_2.0

Client sampling date / time

24-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1406498-006				
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

**VL\_MW03\_2.0**

----

----

----

----

Client sampling date / time

24-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406498-006	----	----	----	----
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>107</b>	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>90.5</b>	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	<b>59.3</b>	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>86.9</b>	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	<b>79.6</b>	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	<b>100</b>	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>106</b>	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	<b>111</b>	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	<b>93.9</b>	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW08_0.1 - 24-MAR-2014 15:00	Mid brown clay soil with grey and red rocks plus plenty of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406498</b> <b>Amendment</b> : <b>(Preliminary Report)</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : CM <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 02-APR-2014 17:12  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 6
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

Page : 2 of 10  
Work Order : ES1406498  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
**Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).**  
**Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.**



(Preliminary Report)



Page : 3 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, and five Client sample ID columns (VO\_MW08\_1.8, D01\_240314\_CM, VO\_MW08\_0.1, VU\_MW15\_4.0, VL\_MW01\_3.0). Rows include pH (Soils), Moisture Content, Asbestos identification (EA200), Asbestos Quantification (EA200Q), Exchangeable Cations (ED007), and Total Metals by ICP-AES (EG005T).

(Preliminary Report)



Page : 4 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns: Compound, CAS Number, LOR, Unit, and five Client sample ID columns (VO\_MW08\_1.8, D01\_240314\_CM, VO\_MW08\_0.1, VU\_MW15\_4.0, VL\_MW01\_3.0). Rows include EG005T: Total Metals by ICP-AES - Continued, EG035T: Total Recoverable Mercury by FIMS, EP075(SIM)A: Phenolic Compounds, and EP075(SIM)B: Polynuclear Aromatic Hydrocarbons.

(Preliminary Report)

Page : 5 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns for Compound, CAS Number, LOR, Unit, and five Client sample IDs (VO\_MW08\_1.8, D01\_240314\_CM, VO\_MW08\_0.1, VU\_MW15\_4.0, VL\_MW01\_3.0). Rows include various hydrocarbons like Fluorene, Phenanthrene, Anthracene, etc., and summary rows for polycyclic aromatic hydrocarbons and petroleum hydrocarbons.

(Preliminary Report)



Page : 6 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Table with columns for Compound, CAS Number, LOR, Unit, and five Client sample IDs (VO\_MW08\_1.8, D01\_240314\_CM, VO\_MW08\_0.1, VU\_MW15\_4.0, VL\_MW01\_3.0). Rows include BTEX compounds, Phenolic Compound Surrogates, PAH Surrogates, and TPH(BTEX) Surrogates.

(Preliminary Report)



Page : 7 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL\_MW03\_2.0

Client sampling date / time

24-MAR-2014 15:00

Table with 5 columns: Compound, CAS Number, LOR, Unit, and ES1406498-006

EA055: Moisture Content

Table with 5 columns: Moisture Content (dried @ 103°C), CAS Number, LOR, Unit, and 13.3

EG005T: Total Metals by ICP-AES

Table with 5 columns: Metal (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Zinc), CAS Number, LOR, Unit, and concentration values

EG035T: Total Recoverable Mercury by FIMS

Table with 5 columns: Mercury, CAS Number, LOR, Unit, and <0.1

EP075(SIM)A: Phenolic Compounds

Table with 5 columns: Phenolic Compound (Phenol, 2-Chlorophenol, etc.), CAS Number, LOR, Unit, and concentration values

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Table with 5 columns: PNAH (Naphthalene, Acenaphthylene, etc.), CAS Number, LOR, Unit, and concentration values

(Preliminary Report)



Page : 8 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL\_MW03\_2.0

Client sampling date / time

24-MAR-2014 15:00

Table with 6 columns: Compound, CAS Number, LOR, Unit, and two empty columns. Row 1: ES1406498-006

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Table with 6 columns: Compound, CAS Number, LOR, Unit, and two empty columns. Rows include Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1.2.3.cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene, Sum of polycyclic aromatic hydrocarbons, Benzo(a)pyrene TEQ (zero), Benzo(a)pyrene TEQ (half LOR), Benzo(a)pyrene TEQ (LOR).

EP080/071: Total Petroleum Hydrocarbons

Table with 6 columns: Compound, CAS Number, LOR, Unit, and two empty columns. Rows include C6 - C9 Fraction, C10 - C14 Fraction, C15 - C28 Fraction, C29 - C36 Fraction, C10 - C36 Fraction (sum).

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

Table with 6 columns: Compound, CAS Number, LOR, Unit, and two empty columns. Rows include C6 - C10 Fraction, C6 - C10 Fraction minus BTEX (F1), >C10 - C16 Fraction, >C16 - C34 Fraction, >C34 - C40 Fraction, >C10 - C40 Fraction (sum), >C10 - C16 Fraction minus Naphthalene (F2).

EP080: BTEXN

Table with 6 columns: Compound, CAS Number, LOR, Unit, and two empty columns. Rows include Benzene, Toluene, Ethylbenzene, meta- & para-Xylene, ortho-Xylene.

(Preliminary Report)

Page : 9 of 10
Work Order : ES1406498
Client : ENVIRO RESOURCES MANAGEMENT
Project : VALES POINT POWER STATION



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VL\_MW03\_2.0

---

---

---

---

Client sampling date / time

24-MAR-2014 15:00

---

---

---

---

Table with columns: Compound, CAS Number, LOR, Unit, and multiple result columns. Includes sections for EP080: BTEXN, EP075(SIM)S: Phenolic Compound Surrogates, EP075(SIM)T: PAH Surrogates, and EP080S: TPH(V)/BTEX Surrogates.

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Table with columns: Method: Compound, Client sample ID - Client sampling date / time, Analytical Results. Row: EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples, EA200: Description, VO\_MW08\_0.1 - 24-MAR-2014 15:00, NAU



Page : 10 of 10  
Work Order : ES1406498  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION

### Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0



## QUALITY CONTROL REPORT

<b>Work Order</b> : <b>ES1406498</b>  <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800  <b>Project</b> : VALES POINT POWER STATION <b>Site</b> : ---- <b>C-O-C number</b> : ---- <b>Sampler</b> : CM <b>Order number</b> : 0237747  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 13  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 04-APR-2014  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 6
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Sydney Organics
Shobhna Chandra	Metals Coordinator	Newcastle - Asbestos
		Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3363212)</b>									
ES1406307-016	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.9	8.0	0.0	0% - 20%
ES1406498-001	VO_MW08_1.8	EA002: pH Value	----	0.1	pH Unit	3.5	3.4	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3364052)</b>									
ES1406498-004	VU_MW15_4.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.1	22.0	4.0	0% - 20%
ES1406563-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.9	9.9	0.0	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3360128)</b>									
ES1406339-003	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.6	2.8	7.4	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.1	3.3	6.8	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367730)</b>									
ES1406494-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	12	16.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406498-001	VO_MW08_1.8	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367730) - continued</b>											
ES1406498-001	VO_MW08_1.8	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	10	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	6	<5	24.6	No Limit		
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3367731)</b>											
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES1406498-001	VO_MW08_1.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361322)</b>											
ES1406394-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406494-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361322)</b>											
ES1406394-001	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361322) - continued</b>									
ES1406394-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406494-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361276)</b>									
EB1406826-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406494-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361319)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361319) - continued</b>										
ES1406394-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1406494-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361334)</b>										
ES1406394-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406456-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361276)</b>										
EB1406826-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406494-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361319)</b>										
ES1406394-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
ES1406494-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361334)</b>										
ES1406394-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406456-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3361276)</b>										
EB1406826-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1406494-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3361334)</b>										
ES1406394-009	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3361334) - continued</b>									
ES1406394-009	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		ES1406456-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2
EP080: Toluene	108-88-3	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Ethylbenzene	100-41-4	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: ortho-Xylene	95-47-6	0.5		mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Naphthalene	91-20-3	1		mg/kg	<1	<1	0.0	No Limit	



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3360128)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	122	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	110	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	106	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	120	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	112	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	109	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	110	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	114	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	115	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	101	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.2	70	105	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361322)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	102	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	83.2	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	83.3	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	71.3	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.0	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	94.1	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	83.2	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	83.5	73	117	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361322) - continued</b>									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	83.4	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	77.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	80.7	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	20.5	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361322)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	91.7	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	101	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	87.9	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	102	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	99.1	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	94.1	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	93.5	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	99.6	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	89.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	93.8	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	82.3	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.8	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	92.1	76	122	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	82.8	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	86.4	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.2	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361276)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	101	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361319)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	104	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	91.6	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361334)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.6	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361276)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361319)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	101	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	78.9	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361334)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.0	68.4	128	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3361276)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	107	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	106	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.0	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	100	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.6	62	138	
<b>EP080: BTEXN (QCLot: 3361334)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.2	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.6	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.8	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.3	62	138	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>								
ES1406494-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.5	70	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	110	70	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130	
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130	
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130	
		EG005T: Selenium	7782-49-2	50 mg/kg	94.3	70	130	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>								
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.2	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361322)</b>								
ES1406394-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	111	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.4	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	90.0	60	130	



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361322) - continued</b>								
ES1406394-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	78.2	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.8	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361322)</b>								
ES1406394-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.2	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361276)</b>								
EB1406826-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.7	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361319)</b>								
ES1406394-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	85.8	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	89.1	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	95.5	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361334)</b>								
ES1406394-009	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361276)</b>								
EB1406826-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361319)</b>								
ES1406394-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	89.3	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	88.8	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361334)</b>								
ES1406394-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.1	70	130	
<b>EP080: BTEXN (QCLot: 3361276)</b>								
EB1406826-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.5	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	93.6	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.5	70	130	
	91-20-3	2.5 mg/kg	88.1	70	130			
<b>EP080: BTEXN (QCLot: 3361334)</b>								
ES1406394-009	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	101	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	91.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	88.0	70	130	
			106-42-3					
EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.6	70	130			



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report					
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
								Low	High
<b>EP080: BTEXN (QCLot: 3361334) - continued</b>									
ES1406394-009		Anonymous		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.7	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report								
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)			
							MS	MSD	Low	High	Value	Control Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361276)</b>														
EB1406826-002		Anonymous		EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.7	----	70	130	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361276)</b>														
EB1406826-002		Anonymous		EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.0	----	70	130	----	----		
<b>EP080: BTEXN (QCLot: 3361276)</b>														
EB1406826-002		Anonymous		EP080: Benzene	71-43-2	2.5 mg/kg	95.5	----	70	130	----	----		
				EP080: Toluene	108-88-3	2.5 mg/kg	93.6	----	70	130	----	----		
				EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	----	70	130	----	----		
				EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.9	----	70	130	----	----		
					106-42-3									
				EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.5	----	70	130	----	----		
				EP080: Naphthalene	91-20-3	2.5 mg/kg	88.1	----	70	130	----	----		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361319)</b>														
ES1406394-001		Anonymous		EP071: C10 - C14 Fraction	----	640 mg/kg	85.8	----	73	137	----	----		
				EP071: C15 - C28 Fraction	----	3140 mg/kg	89.1	----	53	131	----	----		
				EP071: C29 - C36 Fraction	----	2860 mg/kg	95.5	----	52	132	----	----		
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361319)</b>														
ES1406394-001		Anonymous		EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	106	----	73	137	----	----		
				EP071: >C16 - C34 Fraction	----	4800 mg/kg	89.3	----	53	131	----	----		
				EP071: >C34 - C40 Fraction	----	2400 mg/kg	88.8	----	52	132	----	----		
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361322)</b>														
ES1406394-001		Anonymous		EP075(SIM): Phenol	108-95-2	10 mg/kg	111	----	70	130	----	----		
				EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.4	----	70	130	----	----		
				EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	90.0	----	60	130	----	----		
				EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	78.2	----	70	130	----	----		
				EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	46.8	----	20	130	----	----		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361322)</b>														
ES1406394-001		Anonymous		EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.2	----	70	130	----	----		
				EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	----	70	130	----	----		



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361334)</b>											
ES1406394-009	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361334)</b>											
ES1406394-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.1	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3361334)</b>											
ES1406394-009	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	101	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	91.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.9	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	88.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.6	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	82.7	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367730)</b>											
ES1406494-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.5	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	110	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	94.3	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	104	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367731)</b>											
ES1406494-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.2	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406498</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: CM	No. of samples received	: 6
Order number	: 0237747	No. of samples analysed	: 6
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VO_MW08_1.8	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	31-MAR-2014	28-MAR-2014	*
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VO_MW08_1.8, D01_240314_CM, VU_MW15_4.0, VL_MW01_3.0, VL_MW03_2.0	24-MAR-2014	----	----	----	28-MAR-2014	07-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>							
Snap Lock Bag (EA200) VO_MW08_0.1	24-MAR-2014	---	20-SEP-2014	----	04-APR-2014	01-OCT-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VO_MW08_1.8	24-MAR-2014	27-MAR-2014	21-APR-2014	✓	28-MAR-2014	21-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VO_MW08_1.8, D01_240314_CM, VU_MW15_4.0, VL_MW01_3.0, VL_MW03_2.0	24-MAR-2014	31-MAR-2014	20-SEP-2014	✓	01-APR-2014	20-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VO_MW08_1.8, D01_240314_CM, VU_MW15_4.0, VL_MW01_3.0, VL_MW03_2.0	24-MAR-2014	31-MAR-2014	21-APR-2014	✓	02-APR-2014	21-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VO_MW08_1.8, D01_240314_CM, VU_MW15_4.0, VL_MW01_3.0, VL_MW03_2.0	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	01-APR-2014	07-MAY-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW08_1.8, VU_MW15_4.0, VL_MW03_2.0	D01_240314_CM, VL_MW01_3.0,	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	01-APR-2014	07-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VO_MW08_1.8, VU_MW15_4.0, VL_MW03_2.0	D01_240314_CM, VL_MW01_3.0,	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	01-APR-2014	07-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW15_4.0, VL_MW03_2.0	VL_MW01_3.0,	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW08_1.8,	D01_240314_CM	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW15_4.0, VL_MW03_2.0	VL_MW01_3.0,	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VO_MW08_1.8,	D01_240314_CM	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Page : 6 of 7  
Work Order : ES1406498  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
Container / Client Sample ID(s)						
<b>EA002 : pH (Soils)</b>						
Soil Glass Jar - Unpreserved VO_MW08_1.8	----	----	----	31-MAR-2014	28-MAR-2014	3

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406498**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : CM</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 25-MAR-2014</b></p> <p><b>Client Requested Due Date : 02-APR-2014</b></p>	<p><b>Issue Date : 26-MAR-2014 18:35</b></p> <p><b>Scheduled Reporting Date : <b>02-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.2°C - Ice present</b></p> <p><b>No. of samples received : 6</b></p> <p><b>No. of samples analysed : 6</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample T01 send to Envirolab**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols	SOIL - S-27 TRH/BTEX/PAH/Phenols/8Metals
ES1406498-001	24-MAR-2014 15:00	VO_MW08_1.8	✓		✓	✓	✓	✓	
ES1406498-002	24-MAR-2014 15:00	D01_240314_CM				✓	✓	✓	
ES1406498-003	24-MAR-2014 15:00	VO_MW08_0.1		✓					
ES1406498-004	24-MAR-2014 15:00	VU_MW15_4.0							✓
ES1406498-005	24-MAR-2014 15:00	VL_MW01_3.0							✓
ES1406498-006	24-MAR-2014 15:00	VL_MW03_2.0							✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406499</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KB <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 7  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 02-APR-2014  <b>No. of samples received</b> : 3 <b>No. of samples analysed</b> : 3
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MW01_4.9	VT_MW03B_4.9	VU_MW13_3.3	---	---
				24-MAR-2014 09:30	24-MAR-2014 11:30	24-MAR-2014 04:30	---	---
Compound	CAS Number	LOR	Unit	ES1406499-001	ES1406499-002	ES1406499-003	---	---
<b>EA002 : pH (Soils)</b>								
pH Value	---	0.1	pH Unit	---	---	3.6	---	---
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	---	1.0	%	14.8	19.9	12.6	---	---
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	---	0.1	meq/100g	---	---	<0.1	---	---
Exchangeable Magnesium	---	0.1	meq/100g	---	---	0.9	---	---
Exchangeable Potassium	---	0.1	meq/100g	---	---	<0.1	---	---
Exchangeable Sodium	---	0.1	meq/100g	---	---	0.1	---	---
Cation Exchange Capacity	---	0.1	meq/100g	---	---	1.1	---	---
Exchangeable Aluminium	---	0.1	meq/100g	---	---	0.1	---	---
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	---	---	---
Barium	7440-39-3	10	mg/kg	<10	<10	---	---	---
Beryllium	7440-41-7	1	mg/kg	<1	<1	---	---	---
Boron	7440-42-8	50	mg/kg	<50	<50	---	---	---
Cadmium	7440-43-9	1	mg/kg	<1	<1	---	---	---
Chromium	7440-47-3	2	mg/kg	6	<2	---	---	---
Cobalt	7440-48-4	2	mg/kg	5	<2	---	---	---
Copper	7440-50-8	5	mg/kg	18	<5	---	---	---
Lead	7439-92-1	5	mg/kg	<5	<5	---	---	---
Manganese	7439-96-5	5	mg/kg	71	<5	---	---	---
Molybdenum	7439-98-7	2	mg/kg	<2	<2	---	---	---
Nickel	7440-02-0	2	mg/kg	15	<2	---	---	---
Selenium	7782-49-2	5	mg/kg	<5	<5	---	---	---
Vanadium	7440-62-2	5	mg/kg	23	6	---	---	---
Zinc	7440-66-6	5	mg/kg	50	<5	---	---	---
Thallium	7440-28-0	5	mg/kg	<5	<5	---	---	---
Arsenic	7440-38-2	5	mg/kg	---	---	<5	---	---
Cadmium	7440-43-9	1	mg/kg	---	---	<1	---	---
Chromium	7440-47-3	2	mg/kg	---	---	<2	---	---
Copper	7440-50-8	5	mg/kg	---	---	<5	---	---
Lead	7439-92-1	5	mg/kg	---	---	<5	---	---
Nickel	7440-02-0	2	mg/kg	---	---	<2	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VT_MW01_4.9	VT_MW03B_4.9	VU_MW13_3.3	---	---
				24-MAR-2014 09:30	24-MAR-2014 11:30	24-MAR-2014 04:30	---	---
Compound	CAS Number	LOR	Unit	ES1406499-001	ES1406499-002	ES1406499-003	---	---
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Zinc	7440-66-6	5	mg/kg	---	---	<5	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time	VT_MW01_4.9	VT_MW03B_4.9	VU_MW13_3.3	---	---
24-MAR-2014 09:30	24-MAR-2014 11:30	24-MAR-2014 04:30	----	----	----
	ES1406499-001	ES1406499-002	ES1406499-003	----	----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Compound	CAS Number	LOR	Unit	ES1406499-001	ES1406499-002	ES1406499-003	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----

### EP080: BTEXN

Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----

### EP075(SIM)S: Phenolic Compound Surrogates

Phenol-d6	13127-88-3	0.1	%	94.4	75.9	73.9	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	90.6	78.3	79.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	60.5	61.9	60.9	----	----

### EP075(SIM)T: PAH Surrogates



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VT_MW01_4.9	VT_MW03B_4.9	VU_MW13_3.3	----	----
-------------	--------------	-------------	------	------

Client sampling date / time

24-MAR-2014 09:30	24-MAR-2014 11:30	24-MAR-2014 04:30	----	----
-------------------	-------------------	-------------------	------	------

Compound	CAS Number	LOR	Unit	ES1406499-001	ES1406499-002	ES1406499-003	----	----
----------	------------	-----	------	---------------	---------------	---------------	------	------

### EP075(SIM)T: PAH Surrogates - Continued

2-Fluorobiphenyl	321-60-8	0.1	%	96.5	96.4	100	----	----
Anthracene-d10	1719-06-8	0.1	%	92.5	92.5	95.8	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	85.0	86.2	89.6	----	----

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.5	106	76.9	----	----
Toluene-D8	2037-26-5	0.1	%	93.1	102	92.0	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.5	99.3	89.9	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406499</b>	<b>Page</b>	<b>: 1 of 13</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 25-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 02-APR-2014</b>
<b>Sampler</b>	<b>: KB</b>	<b>No. of samples received</b>	<b>: 3</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 3</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC





### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3363212)</b>									
ES1406307-016	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.9	8.0	0.0	0% - 20%
ES1406498-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	3.5	3.4	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3364052)</b>									
ES1406498-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.1	22.0	4.0	0% - 20%
ES1406563-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.9	9.9	0.0	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3360128)</b>									
ES1406339-003	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.6	2.8	7.4	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.1	3.3	6.8	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367251)</b>									
ES1406141-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	23.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	24	44.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406141-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367251) - continued</b>									
ES1406141-001	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	11	30.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3367253)</b>									
ES1406499-003	VU_MW13_3.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406534-015	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	4	87.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	13	11	14.7	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3367252)</b>									
ES1406141-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406141-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3367254)</b>									
ES1406499-003	VU_MW13_3.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406534-015	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361413)</b>									
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361413) - continued</b>									
ES1406239-001	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406497-006	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361413)</b>									
ES1406239-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.1	1.2	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.1	1.2	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.8	0.9	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.2	1.2	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.6	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	0.6	28.5	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	0.5	18.1	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	0.8	0.6	20.9	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	8.5	7.6	11.2	0% - 50%
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	0.8	35.6	No Limit		
ES1406497-006	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	0.6	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361413) - continued</b>									
ES1406497-006	Anonymous	EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.4	1.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.4	1.4	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.5	0.6	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.7	0.8	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	0.6	0.7	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	6.1	7.6	21.9	0% - 50%
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.0	1.2	15.8	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361412)</b>									
ES1406239-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406497-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3362233)</b>									
ES1406497-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406709-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361412)</b>									
ES1406239-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406497-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3362233)</b>									
ES1406497-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406709-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3362233)</b>									
ES1406497-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						

Page : 7 of 13  
 Work Order : ES1406499  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3362233) - continued</b>										
ES1406497-004	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
ES1406709-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED007: Exchangeable Cations (QCLot: 3360128)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	107	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	112	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	112	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	110	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	122	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	110	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	111	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	118	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	115	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	118	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	73.1	70	130	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367253)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	115	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	115	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	107	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	111	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	91.6	70	105	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367254)</b>									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367254) - continued</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.9	70	105	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	92.0	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	88.8	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	100	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	78.7	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	83.5	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	76.3	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	81.9	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	86.9	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	24.7	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	81.4	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	86.6	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	88.0	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	94.6	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	96.0	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	93.1	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	97.3	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	89.3	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	92.6	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.7	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	101	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	119	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	106	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	109	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	103	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	92.4	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	97.2	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	111	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>									





Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412) - continued</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	96.6	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	97.7	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	111	63	131
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	110	68.4	128
<b>EP080: BTEXN (QCLot: 3362233)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.3	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.2	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.7	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.1	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.8	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>							
ES1406141-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.3	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	97.9	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	103	70	130
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367253)</b>							
ES1406499-003	VU_MW13_3.3	EG005T: Arsenic	7440-38-2	50 mg/kg	107	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	108	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.9	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	107	70	130





Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>								
ES1406141-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	87.8	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367254)</b>								
ES1406499-003	VU_MW13_3.3	EG035T: Mercury	7439-97-6	5 mg/kg	95.0	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>								
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	70	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	73.5	70	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	76.9	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.0	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	45.0	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>								
ES1406239-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	73.5	70	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	# 66.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>								
ES1406239-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.1	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	52	132	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>								
ES1406497-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>								
ES1406239-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.1	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>								
ES1406497-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	70	130	
<b>EP080: BTEXN (QCLot: 3362233)</b>								
ES1406497-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	104	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	107	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.8	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	91.6	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361412)</b>											
ES1406239-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	80.2	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.1	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.4	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361412)</b>											
ES1406239-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	109	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	81.1	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	66.2	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361413)</b>											
ES1406239-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.6	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	73.5	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	76.9	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	77.0	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	45.0	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361413)</b>											
ES1406239-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	73.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	# 66.8	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3362233)</b>											
ES1406497-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	118	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3362233)</b>											
ES1406497-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3362233)</b>											
ES1406497-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	104	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	107	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	99.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.8	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	91.6	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367251)</b>											
ES1406141-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	110	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	108	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	95.3	----	70	130	----	----	
		EG005T: Selenium	7782-49-2	50 mg/kg	97.9	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	103	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252)</b>											



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367252) - continued</b>											
ES1406141-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	87.8	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3367253)</b>											
ES1406499-003	VU_MW13_3.3	EG005T: Arsenic	7440-38-2	50 mg/kg	107	----	70	130	----	----	
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	----	70	130	----	----	
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----	
		EG005T: Copper	7440-50-8	125 mg/kg	113	----	70	130	----	----	
		EG005T: Lead	7439-92-1	125 mg/kg	108	----	70	130	----	----	
		EG005T: Nickel	7440-02-0	50 mg/kg	99.9	----	70	130	----	----	
		EG005T: Zinc	7440-66-6	125 mg/kg	107	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3367254)</b>											
ES1406499-003	VU_MW13_3.3	EG035T: Mercury	7439-97-6	5 mg/kg	95.0	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406499</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: KB	No. of samples received	: 3
Order number	: 0237747	No. of samples analysed	: 3
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW13_3.3	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	31-MAR-2014	28-MAR-2014	*
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	----	----	----	28-MAR-2014	07-APR-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VU_MW13_3.3	24-MAR-2014	27-MAR-2014	21-APR-2014	✓	28-MAR-2014	21-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	31-MAR-2014	20-SEP-2014	✓	01-APR-2014	20-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	31-MAR-2014	21-APR-2014	✓	02-APR-2014	21-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP071) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VT_MW01_4.9, VT_MW03B_4.9, VU_MW13_3.3	24-MAR-2014	27-MAR-2014	07-APR-2014	✓	29-MAR-2014	06-MAY-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VT_MW01_4.9, VU_MW13_3.3	VT_MW03B_4.9,	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> VT_MW01_4.9, VU_MW13_3.3	VT_MW03B_4.9,	24-MAR-2014	28-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Exchangeable Cations	ED007	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Exchangeable Cations	ED007	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Exchangeable Cations	ED007	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.







## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1406239-001	Anonymous	Pyrene	129-00-0	66.8 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved VU_MW13_3.3		----	----	----	31-MAR-2014	28-MAR-2014	3

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1406499</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: KB</b>		

#### Dates

Date Samples Received	: 25-MAR-2014	Issue Date	: 26-MAR-2014 18:26
Client Requested Due Date	: 02-APR-2014	Scheduled Reporting Date	: <b>02-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 3
Security Seal	: Intact.	No. of samples analysed	: 3

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) -Default	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-24 TRH/BTEX/PAH + Phenols	SOIL - S-27 TRH/BTEX/PAH/Phenols/8Metals
ES1406499-001	24-MAR-2014 09:30	VT_MW01_4.9			✓	✓	✓	
ES1406499-002	24-MAR-2014 11:30	VT_MW03B_4.9			✓	✓	✓	
ES1406499-003	24-MAR-2014 04:30	VU_MW13_3.3	✓	✓				✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

LADELAIDE 21 Burma Road Poomala SA 5095  
Ph: 08 8338 0950 E: aledel@alsglobal.com  
CHRISBANE 35 Shane Street Stirling QLD 4053  
Ph: 07 3243 7222 E: samplos@alsglobal.com  
GLADSTONE 46 Challenorish Drive Clinton QLD 4680  
Ph: 07 4747 5000 E: gladstone@alsglobal.com

DMACKAY 78 Waterloo Road Mackay QLD 4740  
Ph: 07 4644 0177 E: mackay@alsglobal.com  
DMEBOURNE 2-4 Westral Road Spangville VIC 3171  
Ph: 03 8549 8000 E: samplos@alsglobal.com  
DUNDGEE 27 Sydney Road Dundee NSW 2850  
Ph: 02 6572 6735 E: mudgee@alsglobal.com

DNEWCASTLE 8 Rose Gum Road Warabook NSW 2304  
Ph: 02 4868 9438 E: warabook@alsglobal.com  
DNOOWRA 4/13 Geary Place North Nowra NSW 2541  
Ph: 02423 2063 E: nowra@alsglobal.com  
DPERTH 10-100 Way Way WA 6000  
Ph: 08 9209 7655 E: samples\_perth@alsglobal.com

DISYDNEY 977-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8666 E: samples\_sydney@alsglobal.com  
DTONNSVILLE 14-15 Deane Court Bonville QLD 4818  
Ph: 07 4736 0630 E: townsville@alsglobal.com  
DUNLONGBONG 80 Karmy Street Wollongong NSW 2520  
Ph: 02 4225 3122 E: perth@alsglobal.com

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

SITE MANAGER: JOHN EWING

SAMPLER: *Kate Biston*

COC emailed to ALS? (YES / NO)

RELINQUISHED BY: *Kate Biston*

DATE/TIME: *24/03/2014*

RECEIVED BY: *SSS/SJS/JS*

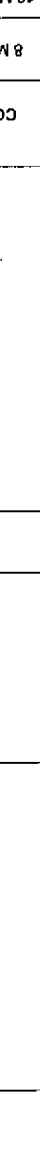
DATE/TIME: *25/3/14 19:00*

Additional Information

Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.

Environmental Division  
Sydney  
Work Order  
**ES1406499**

Telephone : + 61-2-8784 8555



FOR LABORATORY USE ONLY (Circle)

Check Seal/Leakage?

Check Residuals (Gases/Pressure/Airflow/Leakage)?

Random Sample Temperature/Volume/Receipt?

Other Comments

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

COC SEQUENCE NUMBER (Circle)

600: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

CONTACT PH: 0401 776 290

SAMPLER MOBILE: 0405 240704

EDD FORMAT (or default):

Email Reports to (will default to PM if no other addresses are listed): symphony.deltacoas@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.deltacoas@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

(CONTAINER INFORMATION)

(SAMPLE DETAILS MATRIX: SOLID (S) WATER (W))

TYPE & PRESERVATIVE codes below)

(refer to TOTAL CONTAINERS)

13 METALS (S-3) + B, Mo, Tl, Se

8 METALS (S-2)

TPH/BTEX/PAH/ PHENOLS (S-24)

ASBESTOS

VOC

PCB

PFOS/PFOA

pH/EC

PSD sieve / TOC

EC Saturated Paste

Ultra Trace PAH

Ultra Trace Metals

VT-MW01-4.9

VT-MW02-4.9

VU-MW13-3.3

VT-MW03-4.9

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

VU-MW13-3.3

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406590</b>	Page	: 1 of 44
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Site	: ----	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1406589#2. Confirmed by reanalysis**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**
- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	----	----	13.5
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	<5
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	----	10
Copper	7440-50-8	5	mg/kg	----	----	----	----	<5
Lead	7439-92-1	5	mg/kg	----	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	----	----	----	----	<2
Zinc	7440-66-6	5	mg/kg	----	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	----	----	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<b>61</b>	<b>55</b>	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<b>69</b>	<b>63</b>	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<b>41</b>	<b>40</b>	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<b>0.5</b>	<b>0.4</b>	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<b>14.5</b>	<b>10.9</b>	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<b>1.6</b>	<b>1.4</b>	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<b>8.5</b>	<b>7.3</b>	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<b>3.2</b>	<b>2.9</b>	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	28.3	22.9	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	11.7	10.2	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	----	----	86.0
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	----	87.3
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	----	95.7
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	----	93.2
Anthracene-d10	1719-06-8	0.1	%	----	----	----	----	97.2
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	----	96.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	96.3	118	99.2	101
Toluene-D8	2037-26-5	0.1	%	107	88.7	120	99.2	102
4-Bromofluorobenzene	460-00-4	0.1	%	107	91.2	113	91.0	96.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	----	3.2
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	127	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	12.9	14.3	10.1	12.7	10.8
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	----	0.3
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	----	0.6
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	----	<0.1
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	----	0.1
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	----	1.0
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	----	<0.1
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	3	3	<2	14
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	6
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	9
Nickel	7440-02-0	2	mg/kg	2	<2	<2	<2	17
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	47
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
				ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	62.9	62.5	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	120	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.7	90.5	92.0	94.8	94.4
2-Chlorophenol-D4	93951-73-6	0.1	%	89.5	89.9	93.3	97.4	98.2
2,4,6-Tribromophenol	118-79-6	0.1	%	99.2	99.1	104	109	105
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	94.0	94.7	95.4	102	102
Anthracene-d10	1719-06-8	0.1	%	94.5	92.9	97.9	106	104
4-Terphenyl-d14	1718-51-0	0.1	%	97.1	95.5	97.3	104	103



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	103	99.1	104	109
Toluene-D8	2037-26-5	0.1	%	117	104	100	102	110
4-Bromofluorobenzene	460-00-4	0.1	%	113	99.6	97.7	94.7	99.3





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TSC-5	TSC-7	----	----	----
				25-MAR-2014 15:00	25-MAR-2014 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1406590-037	ES1406590-038	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	64	61	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	72	69	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	43	41	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.5	0.5	----	----	----
Toluene	108-88-3	0.5	mg/kg	14.9	14.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	1.7	1.6	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	8.5	8.3	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	3.2	3.2	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	28.8	28.1	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	11.7	11.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	105	----	----	----
Toluene-D8	2037-26-5	0.1	%	105	102	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	104	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
				25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
				ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<b>0.06</b>	<b>0.06</b>	----	----
Barium	7440-39-3	0.001	mg/L	<b>0.044</b>	<b>0.060</b>	<b>0.060</b>	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0001</b>	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	<b>0.002</b>	<0.001	<0.001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	<b>0.003</b>	<b>0.003</b>	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	<b>0.056</b>	<b>0.073</b>	<b>0.077</b>	----	----
Nickel	7440-02-0	0.001	mg/L	<b>0.004</b>	<b>0.001</b>	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<b>0.008</b>	<b>0.007</b>	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	<b>0.025</b>	<b>0.013</b>	<0.005	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<0.0001
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	----	----	----	<b>276</b>	----
Arsenic	7440-38-2	0.5	µg/L	----	----	----	<b>184</b>	----
Barium	7440-39-3	1	µg/L	----	----	----	<b>82</b>	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	<b>13.9</b>	----
Boron	7440-42-8	100	µg/L	----	----	----	<b>1340</b>	----
Cadmium	7440-43-9	0.2	µg/L	----	----	----	<b>0.5</b>	----
Chromium	7440-47-3	0.5	µg/L	----	----	----	<b>2.5</b>	----
Cobalt	7440-48-4	0.2	µg/L	----	----	----	<b>100</b>	----
Copper	7440-50-8	1	µg/L	----	----	----	<b>155</b>	----
Lead	7439-92-1	0.2	µg/L	----	----	----	<b>183</b>	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	<b>2650</b>	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	<0.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

### EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
Nickel	7440-02-0	0.5	µg/L	----	----	----	133	----
Thallium	7440-28-0	0.1	µg/L	----	----	----	0.6	----
Vanadium	7440-62-2	0.5	µg/L	----	----	----	3.7	----
Zinc	7440-66-6	5	µg/L	----	----	----	1200	----

### EG093T: Total Metals in Saline Water by ORC-ICPMS

Selenium	7782-49-2	2	µg/L	----	----	----	----	8
Arsenic	7440-38-2	0.5	µg/L	----	----	----	----	13.3
Barium	7440-39-3	1	µg/L	----	----	----	----	175
Beryllium	7440-41-7	0.1	µg/L	----	----	----	----	0.1
Boron	7440-42-8	100	µg/L	----	----	----	----	137
Cadmium	7440-43-9	0.2	µg/L	----	----	----	----	<0.2
Chromium	7440-47-3	0.5	µg/L	----	----	----	----	0.8
Cobalt	7440-48-4	0.2	µg/L	----	----	----	----	31.6
Copper	7440-50-8	1	µg/L	----	----	----	----	<1
Lead	7439-92-1	0.2	µg/L	----	----	----	----	1.9
Manganese	7439-96-5	0.5	µg/L	----	----	----	----	1880
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	----	0.2
Nickel	7440-02-0	0.5	µg/L	----	----	----	----	35.9
Thallium	7440-28-0	0.1	µg/L	----	----	----	----	<0.1
Vanadium	7440-62-2	0.5	µg/L	----	----	----	----	2.6
Zinc	7440-66-6	5	µg/L	----	----	----	----	29

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

### EP075(SIM)A: Phenolic Compounds - Continued

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
				25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	----	----	----	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	----	----	----	<0.1	<0.1
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	----	----	----	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	----	----	----	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	----	----	----	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	----	----	----	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	----	----	----	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	----	----	----	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	----	----	----	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	----	----	----	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	----	----	----	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	----	----	----	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	----	----	----	<0.1	<0.1
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	----	----	----	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	----	----	----	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	----	----	----	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	----	----	----	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	----	----	----	<0.1	<0.1



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Pyrene	129-00-0	0.1	µg/L	----	----	----	<0.1	<0.1
^ Sum of PAHs	----	0.05	µg/L	----	----	----	<0.05	<0.05
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	----	----	----	<0.05	<0.05
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	21.4	16.0	19.7	23.8	20.0
2-Chlorophenol-D4	93951-73-6	0.1	%	54.6	41.1	52.0	57.5	45.0
2.4.6-Tribromophenol	118-79-6	0.1	%	67.6	55.7	59.4	67.0	65.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	76.4	63.5	74.2	75.9	60.4
Anthracene-d10	1719-06-8	0.1	%	72.7	68.8	69.2	74.2	67.0
4-Terphenyl-d14	1718-51-0	0.1	%	67.2	67.2	66.4	70.5	62.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	90.7	119	108	98.1	96.0
Toluene-D8	2037-26-5	0.1	%	95.2	95.1	98.8	96.9	99.7
4-Bromofluorobenzene	460-00-4	0.1	%	91.6	96.8	95.9	89.5	83.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	77.0	72.1
Anthracene-d10	1719-06-8	0.1	%	----	----	----	84.5	85.5
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	87.7	91.4



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
				ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	0.005	0.001	<0.001	----
Boron	7440-42-8	0.05	mg/L	----	0.07	<0.05	0.08	----
Barium	7440-39-3	0.001	mg/L	----	0.126	0.066	0.070	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	----	0.011	0.005	0.004	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	0.002	0.003	0.002	----
Manganese	7439-96-5	0.001	mg/L	----	0.392	0.145	0.190	----
Nickel	7440-02-0	0.001	mg/L	----	0.004	0.003	0.004	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	0.008	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	<0.01	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	<0.01	----
Zinc	7440-66-6	0.005	mg/L	----	0.050	0.025	0.038	----
Molybdenum	7439-98-7	0.001	mg/L	----	0.001	<0.001	<0.001	----
Thallium	7440-28-0	0.001	mg/L	----	<0.001	<0.001	<0.001	----
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	----	<0.001
Thallium	7440-28-0	0.001	mg/L	----	----	----	----	<0.001



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	3	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L	11.8	----	----	----	----
Barium	7440-39-3	1	µg/L	93	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	----	----	----	----
Boron	7440-42-8	100	µg/L	1300	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	----	----	----	----
Chromium	7440-47-3	0.5	µg/L	2.1	----	----	----	----
Cobalt	7440-48-4	0.2	µg/L	1.1	----	----	----	----
Copper	7440-50-8	1	µg/L	<1	----	----	----	----
Lead	7439-92-1	0.2	µg/L	<0.2	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	2540	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	1.6	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	0.8	----	----	----	----
Thallium	7440-28-0	0.1	µg/L	<0.1	----	----	----	----
Vanadium	7440-62-2	0.5	µg/L	3.2	----	----	----	----
Zinc	7440-66-6	5	µg/L	11	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
				ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	----	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	----	----	----	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	----	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	----	----	----	----
Anthracene	120-12-7	0.1	µg/L	<0.1	----	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	----	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	----	----	----	----
Chrysene	218-01-9	0.1	µg/L	<0.1	----	----	----	----
Coronene	191-07-1	0.1	µg/L	<0.1	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	----	----	----	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	----	----	----	----
Fluorene	86-73-7	0.1	µg/L	<0.1	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	----	----	----	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	----	----	----	----
Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	20.3	20.4	17.4	16.1	15.6
2-Chlorophenol-D4	93951-73-6	0.1	%	49.3	52.0	45.9	35.4	40.5
2,4,6-Tribromophenol	118-79-6	0.1	%	67.6	69.6	65.7	59.6	49.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.7	68.9	61.6	40.2	51.5
Anthracene-d10	1719-06-8	0.1	%	70.1	69.6	74.2	67.5	71.2
4-Terphenyl-d14	1718-51-0	0.1	%	63.3	65.3	69.4	66.9	69.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.8	107	113	108	121
Toluene-D8	2037-26-5	0.1	%	109	121	104	93.8	101
4-Bromofluorobenzene	460-00-4	0.1	%	98.6	115	89.3	92.5	94.8
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.4	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	80.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	85.3	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	<0.0001
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	----	----	----	3.4	2.2
Arsenic	7440-38-2	0.2	µg/L	----	----	----	3.9	2.1
Barium	7440-39-3	0.5	µg/L	----	----	----	136	92.9
Beryllium	7440-41-7	0.1	µg/L	----	----	----	0.5	0.5
Boron	7440-42-8	5	µg/L	----	----	----	36	68
Cadmium	7440-43-9	0.05	µg/L	----	----	----	0.44	0.31
Chromium	7440-47-3	0.2	µg/L	----	----	----	0.8	<0.2
Cobalt	7440-48-4	0.1	µg/L	----	----	----	18.4	15.6
Copper	7440-50-8	0.5	µg/L	----	----	----	28.8	8.4
Lead	7439-92-1	0.1	µg/L	----	----	----	12.4	2.3
Manganese	7439-96-5	0.5	µg/L	----	----	----	319	346
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	<0.1	<0.1
Nickel	7440-02-0	0.5	µg/L	----	----	----	36.2	30.1
Thallium	7440-28-0	0.02	µg/L	----	----	----	0.23	0.10
Vanadium	7440-62-2	0.2	µg/L	----	----	----	0.5	0.5
Zinc	7440-66-6	1	µg/L	----	----	----	113	90
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	----	----	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	----	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	----	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	5	µg/L	----	----	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	----	----	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	----	----	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	----	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	----	----	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	----	----	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	----	----	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	----	----	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	----	----	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	----	----	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	----	----	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	----	----	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	----	----	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	----	----	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	----	----	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	----	----	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	----	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	----	----	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	----	----	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	----	----	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	----	----	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	5	µg/L	<<<	<<<	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<<<	<<<	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<<<	<<<	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<<<	<<<	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<<<	<<<	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<<<	<<<	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<<<	<<<	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<<<	<<<	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<<<	<<<	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<<<	<<<	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<<<	<<<	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<<<	<<<	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<<<	<<<	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<<<	<<<	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<<<	<<<	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<<<	<<<	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<<<	<<<	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<<<	<<<	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<<<	<<<	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<<<	<<<	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<<<	<<<	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<<<	<<<	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<<<	<<<	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<<<	<<<	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<<<	<<<	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<<<	<<<	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	----	----	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	----	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	----	----	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	16	17	<1	<1	<1
Toluene	108-88-3	2	µg/L	14	14	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	15	16	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	14	14	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	16	16	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	30	30	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	75	77	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	18	18	<5	<5	<5
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	126	117	114
Toluene-D8	2037-26-5	0.1	%	----	----	126	124	118
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	120	117	109
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	19.8	17.3	16.4
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	53.4	46.8	46.7
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	65.3	51.8	66.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	61.3	53.5	55.1
Anthracene-d10	1719-06-8	0.1	%	----	----	75.9	65.3	63.8
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	70.8	65.0	62.9





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	130	121	102	94.6	92.1
Toluene-D8	2037-26-5	0.1	%	90.6	90.2	104	89.2	85.1
4-Bromofluorobenzene	460-00-4	0.1	%	92.3	96.6	101	90.7	84.1



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	0.001	----	0.002	0.002
Cadmium	7440-43-9	0.0001	mg/L	----	0.0002	----	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	0.015	----	0.002	0.011
Lead	7439-92-1	0.001	mg/L	----	0.003	----	<0.001	0.002
Nickel	7440-02-0	0.001	mg/L	----	0.022	----	0.003	0.024
Zinc	7440-66-6	0.005	mg/L	----	0.098	----	0.021	0.127
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	3.5	----	4.5	----	----
Arsenic	7440-38-2	0.2	µg/L	3.6	----	4.8	----	----
Barium	7440-39-3	0.5	µg/L	79.7	----	109	----	----
Beryllium	7440-41-7	0.1	µg/L	1.0	----	1.7	----	----
Boron	7440-42-8	5	µg/L	54	----	43	----	----
Cadmium	7440-43-9	0.05	µg/L	0.34	----	0.38	----	----
Chromium	7440-47-3	0.2	µg/L	<0.2	----	<0.2	----	----
Cobalt	7440-48-4	0.1	µg/L	17.0	----	15.5	----	----
Copper	7440-50-8	0.5	µg/L	6.7	----	19.5	----	----
Lead	7439-92-1	0.1	µg/L	2.5	----	3.3	----	----
Manganese	7439-96-5	0.5	µg/L	333	----	268	----	----
Molybdenum	7439-98-7	0.1	µg/L	<0.1	----	<0.1	----	----
Nickel	7440-02-0	0.5	µg/L	33.5	----	30.9	----	----
Thallium	7440-28-0	0.02	µg/L	0.21	----	0.22	----	----
Vanadium	7440-62-2	0.2	µg/L	1.5	----	0.5	----	----
Zinc	7440-66-6	1	µg/L	100	----	114	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	6	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	14	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	11	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	2.5	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	19.8	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	2.3	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	380	<20	<20	20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	410



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
Client sampling date / time				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	410
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	390	<20	<20	20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	90	<20	<20	20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	150
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	290
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	440
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	150
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	210	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	37	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	16	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	19	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	15	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	34	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	297	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	----	----	----	1.53	0.13
PFOA	335-67-1	0.02	µg/L	----	----	----	0.08	0.04
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	----	----	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	91.4	65.1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	119	130	122	128
Toluene-D8	2037-26-5	0.1	%	123	121	122	127	116
4-Bromofluorobenzene	460-00-4	0.1	%	114	116	118	117	108
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	20.2	22.2	18.1	22.6	23.3



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
Client sampling date / time	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024

Compound	CAS Number	LOR	Unit	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	52.2	55.9	46.5	57.8	56.7
2,4,6-Tribromophenol	118-79-6	0.1	%	73.7	73.6	60.6	79.2	87.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	60.3	75.7	63.2	83.2	74.8
Anthracene-d10	1719-06-8	0.1	%	70.8	67.6	60.6	71.8	66.5
4-Terphenyl-d14	1718-51-0	0.1	%	70.2	65.0	59.7	66.7	65.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.1	96.2	105	98.7	110
Toluene-D8	2037-26-5	0.1	%	88.9	87.8	101	92.0	101
4-Bromofluorobenzene	460-00-4	0.1	%	88.5	89.2	99.7	90.5	102



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.010	0.002	<0.001	<0.001	0.002
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.015	<0.001	<0.001	<0.001	0.006
Zinc	7440-66-6	0.005	mg/L	0.139	0.019	0.009	0.006	0.032
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Compound	CAS Number	LOR	Unit	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
Client sampling date / time	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029

Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	160	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	160	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	120	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	120	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	0.10	<0.02	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L	0.03	<0.02	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	116	119	63.6	64.8	65.9
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	130	116	126	123	121
Toluene-D8	2037-26-5	0.1	%	122	113	126	116	125
4-Bromofluorobenzene	460-00-4	0.1	%	116	106	120	107	112
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	21.9	25.0	25.3	29.0	27.4
2-Chlorophenol-D4	93951-73-6	0.1	%	55.6	60.1	57.2	63.2	60.1
2,4,6-Tribromophenol	118-79-6	0.1	%	83.6	73.7	66.8	73.7	68.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	76.2	76.3	61.5	67.9	66.6
Anthracene-d10	1719-06-8	0.1	%	73.7	70.5	68.6	80.1	71.2
4-Terphenyl-d14	1718-51-0	0.1	%	68.3	65.3	61.3	70.8	63.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	100	119	103	102
Toluene-D8	2037-26-5	0.1	%	106	86.7	110	109	102
4-Bromofluorobenzene	460-00-4	0.1	%	108	91.0	112	102	97.9



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_250314\_CM

---

---

---

---

Client sampling date / time

25-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406590-033	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_250314\_CM

---

---

---

---

Client sampling date / time

25-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406590-033	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_250314\_CM**

----

----

----

----

Client sampling date / time

25-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406590-033	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	27.4	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	63.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	66.8	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	65.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	68.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	62.2	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	110	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128





Sub-Matrix: <b>WATER</b>		<i>Recovery Limits (%)</i>	
<i>Compound</i>	<i>CAS Number</i>	<i>Low</i>	<i>High</i>
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
<b>2-Fluorobiphenyl</b>	321-60-8	43	135
<b>Anthracene-d10</b>	1719-06-8	48	138
<b>4-Terphenyl-d14</b>	1718-51-0	48	144

## QUALITY CONTROL REPORT

Work Order	: <b>ES1406590</b>	Page	: 1 of 38
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Order number	: 0237747	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3364129)</b>									
ES1406567-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.6	8.6	0.0	0% - 20%
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3365817)</b>									
ES1406590-032	VM_MW04_3.0	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	127	105	18.9	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3367100)</b>									
ES1406589-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.5	0.8	0% - 50%
ES1406590-035	VU_MW12_4.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.7	12.5	1.2	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3368930)</b>									
ES1406590-036	VU_MW10_2.2	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.6	0.6	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	1.0	1.0	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3372953)</b>									
ES1406589-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406590-030	VL_MW02_2.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	9.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3372954)</b>									
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406590-030	VL_MW02_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3363979)</b>									
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406718-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	4.5	4.4	0.0	0% - 20%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3364011)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3364011) - continued</b>									
ES1406589-011	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364011) - continued</b>									
ES1406589-011	Anonymous	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3363998)</b>									
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3363998) - continued</b>									
ES1406561-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406700-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	1.2	1.4	18.4	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.2	1.4	15.4	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406700-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.7	0.7	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3363998) - continued</b>									
ES1406700-001	Anonymous	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.4	1.4	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3363997)</b>									
ES1406561-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	200	210	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	570	530	6.8	0% - 50%
ES1406700-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3364010)</b>									
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406590-031	VB_MW05_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3363997)</b>									
ES1406561-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	130	140	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	480	380	22.9	No Limit
ES1406700-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3364010)</b>									
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406590-031	VB_MW05_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3364010)</b>									
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit





Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3364010) - continued</b>										
ES1406590-031	VB_MW05_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369152)</b>									
ES1406589-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.226	0.228	0.9	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.011	0.010	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.006	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.101	0.099	2.2	0% - 20%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.323	0.311	3.7	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.046	0.041	11.2	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		ES1406590-007	VF_MW02_250314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001
EG020A-F: Arsenic	7440-38-2			0.001	mg/L	0.005	0.004	0.0	No Limit
EG020A-F: Beryllium	7440-41-7			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Barium	7440-39-3			0.001	mg/L	0.126	0.129	2.1	0% - 20%
EG020A-F: Chromium	7440-47-3			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Cobalt	7440-48-4			0.001	mg/L	0.011	0.011	0.0	0% - 50%
EG020A-F: Copper	7440-50-8			0.001	mg/L	0.002	0.002	0.0	No Limit
EG020A-F: Lead	7439-92-1			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Manganese	7439-96-5			0.001	mg/L	0.392	0.412	4.8	0% - 20%
EG020A-F: Molybdenum	7439-98-7			0.001	mg/L	0.001	<0.001	0.0	No Limit
EG020A-F: Nickel	7440-02-0			0.001	mg/L	0.004	0.004	0.0	No Limit
EG020A-F: Thallium	7440-28-0			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Zinc	7440-66-6			0.005	mg/L	0.050	0.056	9.4	0% - 50%
EG020A-F: Selenium	7782-49-2			0.01	mg/L	<0.01	<0.01	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369152) - continued</b>									
ES1406590-007	VF_MW02_250314	EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.07	0.07	0.0	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369154)</b>									
ES1406590-028	T01_250314_SB	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.005	0.0	No Limit
ES1407038-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.022	0.021	5.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.006	21.7	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3370351)</b>									
ES1406360-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3369151)</b>									
ES1406589-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406590-004	VO_MW04_250314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3369153)</b>									
ES1406590-024	VB_MW01_250314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3369316)</b>									
ES1406589-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406729-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3374814)</b>									
ES1406590-004	VO_MW04_250314	EG093B-F: Selenium	7782-49-2	2	µg/L	276	279	1.1	0% - 20%
ES1407087-012	Anonymous	EG093B-F: Selenium	7782-49-2	2	µg/L	12	13	9.9	No Limit
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3374815)</b>									
ES1406590-004	VO_MW04_250314	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	13.9	13.7	1.2	0% - 20%
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	0.6	0.5	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	0.5	0.4	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	100	99.5	1.0	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	183	186	1.2	0% - 20%
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	184	169	8.7	0% - 20%
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	2.5	2.6	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	2650	2670	0.7	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	133	122	8.9	0% - 20%
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	3.7	4.0	8.0	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	82	74	9.4	0% - 20%
		EG093A-F: Copper	7440-50-8	1	µg/L	155	142	8.8	0% - 20%
		EG093A-F: Boron	7440-42-8	100	µg/L	1340	1320	1.8	0% - 50%
EG093A-F: Zinc	7440-66-6	5	µg/L	1200	1100	8.4	0% - 20%		
ES1407087-012	Anonymous	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	155	152	1.9	0% - 20%
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	24.1	23.4	3.1	0% - 20%
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	3.6	3.5	3.2	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	0.7	0.8	0.0	No Limit
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	2410	2360	2.2	0% - 20%
		EG093A-F: Barium	7440-39-3	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Boron	7440-42-8	100	µg/L	3500	3450	1.6	0% - 20%
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374816)</b>									
ES1406590-005	VO_MW03_250314	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	0.1	0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	0.2	0.1	0.0	No Limit
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374816) - continued</b>									
ES1406590-005	VO_MW03_250314	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	31.6	31.1	1.7	0% - 20%
		EG093A-T: Lead	7439-92-1	0.2	µg/L	1.9	1.8	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	13.3	14.0	4.9	0% - 20%
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	0.8	1.1	34.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	1880	1900	0.7	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	35.9	36.8	2.4	0% - 20%
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	2.6	2.5	4.1	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	175	175	0.0	0% - 20%
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	137	113	18.6	No Limit
EG093A-T: Zinc	7440-66-6	5	µg/L	29	30	0.0	No Limit		
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374817)</b>									
ES1406590-005	VO_MW03_250314	EG093B-T: Selenium	7782-49-2	2	µg/L	8	9	0.0	No Limit
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361)</b>									
ES1406590-018	VH_X_MW02_250314	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.23	0.23	0.0	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.44	0.46	4.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	18.4	18.3	0.6	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	12.4	12.2	0.9	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	3.9	3.9	0.0	0% - 50%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.8	0.8	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	136	136	0.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	28.8	28.6	0.4	0% - 20%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	319	317	0.8	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	36.2	36.6	1.0	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	113	113	0.0	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	36	35	0.0	No Limit
ES1406774-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	0.06	18.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	138	142	2.5	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.1	1.1	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit
EG094A-F: Barium	7440-39-3	0.5	µg/L	102	102	0.7	0% - 20%		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361) - continued</b>									
ES1406774-001	Anonymous	EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1010	986	2.2	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	1.6	1.6	0.0	No Limit
		EG094A-F: Zinc	7440-66-6	1	µg/L	13	13	0.0	0% - 50%
		EG094A-F: Boron	7440-42-8	5	µg/L	150	152	1.4	0% - 20%
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373363)</b>									
ES1406590-018	VH_X_MW02_250314	EG094B-F: Selenium	7782-49-2	0.2	µg/L	3.4	3.4	0.0	0% - 50%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3366189)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074D: Fumigants (QC Lot: 3366189) - continued</b>											
ES1406590-013	R02_250314_SO	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
ES1406590-027	D02_250314_SB	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366189)</b>											
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		ES1406590-027	D02_250314_SB	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366189) - continued</b>									
ES1406590-027	D02_250314_SB	EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		ES1406590-027	D02_250314_SB	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3366189) - continued</b>										
ES1406590-027	D02_250314_SB	EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074G: Trihalomethanes (QC Lot: 3366189)</b>										
ES1406590-013	R02_250314_SO	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074H: Naphthalene (QC Lot: 3366189)</b>										
ES1406590-013	R02_250314_SO	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	440	420	3.6	0% - 20%	
ES1406590-003	D01_250314_SN	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	510	490	3.2	0% - 20%	
ES1406590-003	D01_250314_SN	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	1	µg/L	2	2	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406590-003	D01_250314_SN	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	





Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3364648) - continued</b>										
ES1406590-003	D01_250314_SN	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
<b>EP231: Perfluorinated Compounds (QC Lot: 3365451)</b>										
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
ES1406590-029	VA_MW01_250314	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3365817)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	99.8	96	104	
<b>ED007: Exchangeable Cations (QCLot: 3368930)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	105	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	105	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	70	105	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	95.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3364011)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	88.9	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	90.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	85.8	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	86.9	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	88.7	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	90.1	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	84.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	85.3	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3364011)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	73.9	29.6	156	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3364011) - continued</b>									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	114	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	106	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	108	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3364011)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	101	54	126	
<b>EP074D: Fumigants (QCLot: 3364011)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	89.7	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	94.9	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	90.1	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	94.0	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	39.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	75.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	83.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	80.4	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	95.0	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.6	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	89.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	95.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	93.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	95.8	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	93.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.3	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	98.9	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011) - continued</b>									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	99.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	94.6	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	92.6	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	102	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	82.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	103	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	85.3	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	91.6	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	89.0	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	88.0	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	88.1	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	88.4	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	89.8	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	90.3	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	80.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3364011)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	96.7	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	96.8	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	93.8	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP074H: Naphthalene (QCLot: 3364011)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	94.3	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	83.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	85.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	86.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	88.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.6	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	82.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	85.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	82.1	76.4	114	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998) - continued</b>									
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	85.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.5	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	86.1	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	87.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.5	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	87.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	86.5	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	87.6	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	89.5	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	79.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	81.3	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	83.8	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	84.3	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	77.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	82.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	89.5	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.6	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.9	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	77.9	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.0	68.4	128	
<b>EP080: BTEXN (QCLot: 3364010)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.1	58	118	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3364010) - continued</b>									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.4	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	91.7	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	111	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	107	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	98.3	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.9	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	100	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	111	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	108	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	119	73	123	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.4	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.3	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	104	79	119	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	84	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>									
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	109	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	84	124	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	111	84	116	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.7	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	107	84	118	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	105	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.9	77	117	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	118	75	129	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	109	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.7	77	115	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374814)</b>									
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	100 µg/L	89.9	74	130	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	100 µg/L	90.9	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	83.2	70	122	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	81.4	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	76.4	69	117	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	87.2	73	121	
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	80.6	75	119	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	74.0	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	86.7	74	120	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	78.9	72	122	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	100 µg/L	87.5	71	131	
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	78.9	72	124	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	86.5	72	122	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	78.4	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	75.9	70	126	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374816)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	114	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	112	82	128	





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374816) - continued</b>								
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	92.1	79	123
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	114	82	122
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	100 µg/L	110	85	123
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	116	86	122
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	117	84	128
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	117	85	125
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	113	86	126
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	101	90	126
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	116	85	125
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	106	84	126
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	100 µg/L	118	84	126
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	116	82	128
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374817)</b>								
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	99.8	80	138
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>								
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	98.4	75	129
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	101	81	117
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	98.8	75	123
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	126	79	129
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	102	83	111
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	83	113
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	96.9	81	119
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	102	84	114
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	89.9	74	118
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	107	84	114
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	90.6	74	108
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	95.9	85	117
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	89.1	74	116
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	100	82	114
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	104	83	121
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373363)</b>								
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	90.5	70	122
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363721)</b>								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.6	61.6	107
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363722)</b>								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	77.6	61.6	107
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3366189)</b>								





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3366189) - continued</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	96.3	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.5	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	99.7	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	97.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	99.6	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.9	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.7	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.4	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.4	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3366189)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	# 59.9	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	92.7	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	97.4	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.7	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3366189)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	90.0	72.8	127	
<b>EP074D: Fumigants (QCLot: 3366189)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.9	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	99.6	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	77.6	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	81.9	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	87.6	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	136	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	117	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	116	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	113	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	106	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	109	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	80.2	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	102	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.1	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	101	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	87.5	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	101	78	122	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189) - continued</b>									
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	95.8	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	120	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	# 123	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.4	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	75.4	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	83.4	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	85.7	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	88.5	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	93.7	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	72.2	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	75.8	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	89.8	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.7	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.1	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	99.3	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	99.1	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.9	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.3	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.0	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	91.0	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	96.4	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3366189)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	103	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	82.0	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	86.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	77.4	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3366189)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	102	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363720)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	38.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	68.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	57.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363720) - continued</b>								
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.8	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.5	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	68.3	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	71.4	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	67.5	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.8	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	75.8	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	48.4	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363724)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	48.0	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	81.3	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	77.2	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	83.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	87.8	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	90.7	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	90.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	84.3	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	102	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	84.8	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	82.7	50	108
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363724) - continued</b>									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	82.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363720)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.8	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.9	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	72.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	76.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.7	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	72.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	65.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	70.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	68.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.8	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	66.7	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363724)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	82.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363724) - continued</b>									
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	91.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	84.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	93.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	92.3	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	89.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	99.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	97.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	89.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	93.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	88.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	92.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	92.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	89.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	93.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363719)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363723)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	88.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648) - continued</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	78.1	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.9	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363719)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	88.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	98.7	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363723)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	93.4	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.3	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.9	75	127	
<b>EP080: BTEXN (QCLot: 3364648)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	90.9	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	73.5	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.7	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	86.6	70	124	
<b>EP080: BTEXN (QCLot: 3366190)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.7	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	87.4	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	88.8	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	90.4	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.5	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366171)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	86.0	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	85.6	59	123	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	66.2	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	77.5	64	122	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366171) - continued</b>								
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	79.5	62	124
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	82.6	66	124
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	81.3	64	130
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	84.3	64	126
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	81.1	62	126
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	83.0	62	126
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	82.2	56	126
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	80.4	63	127
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	81.3	64	128
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	79.8	35	133
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	83.4	58	128
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	81.3	65	127
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	78.2	64	124
EP132: Indeno(1,2,3,cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	83.9	57	127
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	104	53.6	131
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	62.5	60	124
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	83.4	64	124
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	83.4	65	125
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	84.6	66	128
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	84.4	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	79.0	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 Fts)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	82.8	61	145

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>							
ES1406589-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.2	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	100	70	130





Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>							
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.5	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>							
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	86.4	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>							
ES1406589-011	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.7	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>							
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	35.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.4	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>							
ES1406561-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	100	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	68.8	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>							
ES1406561-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.9	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.1	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.9	70	130
<b>EP080: BTEXN (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.9	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	83.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.5	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.4	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	81.3	70	130





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3364010) - continued</b>							
ES1406589-011	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	85.3	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>							
ES1406589-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	100	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	104	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.1	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	95.1	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	94.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	91.7	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.7	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	94.9	70	130
EG020A-F: Zinc	7440-66-6	0.2 mg/L	109	70	130		
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>							
ES1406590-029	VA_MW01_250314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	98.6	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.0	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.0	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.2	70	130
		<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>					
ES1406493-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	106	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	118	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	120	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	118	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	120	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	113	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	116	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>							
ES1406493-009	Anonymous	EG020A-T: Zinc	7440-66-6	1 mg/L	101	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>							
ES1406589-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 62.5	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>							
ES1406590-025	VI_MW01_250314	EG035F: Mercury	7439-97-6	0.0100 mg/L	75.4	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>							
ES1406590-033	R01_250314_CM	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	70	130
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>							
ES1407087-002	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	106	70	130
		EG093A-F: Barium	7440-39-3	50 µg/L	92.8	70	130
		EG093A-F: Beryllium	7440-41-7	50 µg/L	106	70	130
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	103	70	130
		EG093A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG093A-F: Cobalt	7440-48-4	50 µg/L	98.0	70	130
		EG093A-F: Copper	7440-50-8	50 µg/L	103	70	130
		EG093A-F: Lead	7439-92-1	50 µg/L	94.8	70	130
		EG093A-F: Manganese	7439-96-5	50 µg/L	93.3	70	130
		EG093A-F: Nickel	7440-02-0	50 µg/L	95.8	70	130
		EG093A-F: Vanadium	7440-62-2	50 µg/L	81.0	70	130
EG093A-F: Zinc	7440-66-6	50 µg/L	99.4	70	130		
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>							
ES1406590-019	VH_X_MW07_250314	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	120	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	103	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	70	130
EG094A-F: Zinc	7440-66-6	50 µg/L	106	70	130		
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>							
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	101	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	94.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>								
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	25 µg/L	96.7	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	325 µg/L	93.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	70	130	
<b>EP080: BTEXN (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.1	70	130	
		EP080: Toluene	108-88-3	25 µg/L	81.2	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	85.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	102	70	130		
<b>EP080: BTEXN (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	25 µg/L	74.7	70	130	
		EP080: Toluene	108-88-3	25 µg/L	79.6	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.9	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	99.6	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>								
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	95.8	70	136	
		EP231: PFOA	335-67-1	0.5 µg/L	79.2	72	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	2.5 µg/L	94.4	61	145	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>											
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	86.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>											
ES1406561-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	100	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	68.8	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>											
ES1406561-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.9	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.1	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>											
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.3	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.8	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.4	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.2	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	35.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>											
ES1406561-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.4	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.9	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	83.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.3	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	85.3	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>											
ES1406589-011	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.7	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>											
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.4	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>											
ES1406589-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	----	70	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953) - continued</b>										
ES1406589-008	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	100	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	102	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	100	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>										
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.5	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.7	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	81.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	85.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>											
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	95.8	----	70	136	----	----	
		EP231: PFOA	335-67-1	0.5 µg/L	79.2	----	72	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	94.4	----	61	145	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>											
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	101	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	94.2	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>											
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	25 µg/L	96.7	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>											
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	325 µg/L	93.0	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>											
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3366190)</b>											



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3366190) - continued</b>										
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	25 µg/L	74.7	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	79.6	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.7	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.9	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	99.6	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>										
ES1406589-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 62.5	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>										
ES1406589-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.1	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	95.1	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	94.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.8	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	91.7	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.7	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	94.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	109	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>										
ES1406590-025	VI_MW01_250314	EG035F: Mercury	7439-97-6	0.0100 mg/L	75.4	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>										
ES1406590-029	VA_MW01_250314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	98.6	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.0	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.0	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.2	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>										
ES1406590-033	R01_250314_CM	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>										
ES1406493-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	----	70	130	----	----



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>										
ES1406493-009	Anonymous	EG020A-T: Barium	7440-39-3	1 mg/L	106	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	118	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	120	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	118	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	120	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	113	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	116	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	101	----	70	130	----	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>										
ES1406590-019	VH_X_MW07_250314	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	120	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	106	----	70	130	----	----
		<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>								
ES1407087-002	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	106	----	70	130	----	----
		EG093A-F: Barium	7440-39-3	50 µg/L	92.8	----	70	130	----	----
		EG093A-F: Beryllium	7440-41-7	50 µg/L	106	----	70	130	----	----
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	103	----	70	130	----	----
		EG093A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG093A-F: Cobalt	7440-48-4	50 µg/L	98.0	----	70	130	----	----
		EG093A-F: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----
		EG093A-F: Lead	7439-92-1	50 µg/L	94.8	----	70	130	----	----
		EG093A-F: Manganese	7439-96-5	50 µg/L	93.3	----	70	130	----	----
		EG093A-F: Nickel	7440-02-0	50 µg/L	95.8	----	70	130	----	----
		EG093A-F: Vanadium	7440-62-2	50 µg/L	81.0	----	70	130	----	----
		EG093A-F: Zinc	7440-66-6	50 µg/L	99.4	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406590</b>	Page	: 1 of 18
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Order number	: 0237747	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW10_2.2	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	31-MAR-2014	31-MAR-2014	✓
<b>EA032: Electrical Conductivity (saturated paste)</b>							
Soil Glass Jar - Unpreserved (EA032) VM_MW04_3.0	25-MAR-2014	----	----	----	31-MAR-2014	21-SEP-2014	✓
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	----	----	----	31-MAR-2014	08-APR-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VU_MW10_2.2	25-MAR-2014	02-APR-2014	22-APR-2014	✓	02-APR-2014	22-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	03-APR-2014	21-SEP-2014	✓	03-APR-2014	21-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	03-APR-2014	22-APR-2014	✓	04-APR-2014	22-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Soil Glass Jar - Unpreserved (EP066) VB_MW05_2.0, VM_MW04_3.0	25-MAR-2014	01-APR-2014	08-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓



Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074D: Fumigants</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) TS5, TS7, TB4, TB6, VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2, TSC-5, TSC-7	25-MAR-2014	28-MAR-2014	08-APR-2014	✓	30-MAR-2014	08-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
TS5, TB4, VL_MW02_2.0, VM_MW04_3.0, VU_MW12_4.1, TSC-5,	TS7, TB6, VB_MW05_2.0, VU_MW12_3.2, VU_MW10_2.2, TSC-7	25-MAR-2014	28-MAR-2014	08-APR-2014	✓	30-MAR-2014	08-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b>								
VN_MW01_250314, D01_250314_SN, VF_MW01_250314, VH_X_MW09_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	VN_MW02_250314, VF_MW02_250314, VF_MW03_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	25-MAR-2014	---	21-SEP-2014	----	01-APR-2014	21-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
R01_250314_SN, R01_250314_CM	R02_250314_SO,	25-MAR-2014	02-APR-2014	21-SEP-2014	✓	02-APR-2014	21-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F)</b>								
VH_X_MW02_250314, VH_X_MW08_250314,	VH_X_MW07_250314, VH_X_MW10_250314	25-MAR-2014	---	22-APR-2014	----	02-APR-2014	22-APR-2014	✓
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b>								
VN_MW01_250314, D01_250314_SN, VF_MW02_250314, VF_MW03_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VN_MW02_250314, VO_MW04_250314, VF_MW01_250314, VH_X_MW09_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	---	22-APR-2014	----	02-APR-2014	22-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VO_MW02_250314	25-MAR-2014	----	----	----	02-APR-2014	22-APR-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VO_MW03_250314	27-MAR-2014	----	----	----	02-APR-2014	24-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_250314_SN, R02_250314_SO, R01_250314_CM	25-MAR-2014	----	----	----	02-APR-2014	22-APR-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F) VO_MW04_250314	25-MAR-2014	---	21-SEP-2014	----	04-APR-2014	21-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VO_MW02_250314	25-MAR-2014	04-APR-2014	21-SEP-2014	✓	04-APR-2014	21-SEP-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VO_MW03_250314	27-MAR-2014	04-APR-2014	23-SEP-2014	✓	04-APR-2014	23-SEP-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093B-F) VO_MW04_250314	25-MAR-2014	---	21-SEP-2014	----	04-APR-2014	21-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VO_MW02_250314	25-MAR-2014	04-APR-2014	21-SEP-2014	✓	04-APR-2014	21-SEP-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VO_MW03_250314	27-MAR-2014	04-APR-2014	23-SEP-2014	✓	04-APR-2014	23-SEP-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) VH_X_MW02_250314, VH_X_MW07_250314, VH_X_MW08_250314, VH_X_MW10_250314	25-MAR-2014	---	21-SEP-2014	----	03-APR-2014	21-SEP-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) VH_X_MW02_250314, VH_X_MW07_250314, VH_X_MW08_250314, VH_X_MW10_250314	25-MAR-2014	---	21-SEP-2014	----	03-APR-2014	21-SEP-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Amber Glass Bottle - Unpreserved (EP066) D02_250314_SB, T01_250314_SB, VA_MW01_250314	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
Amber Glass Bottle - Unpreserved (EP066) VB_MW02_250314, VB_MW01_250314, VI_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VN_MW01_250314, D01_250314_SN, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	VN_MW02_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, TRIP SPIKE-2,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, TRIP SPIKE 4	25-MAR-2014	01-APR-2014	08-APR-2014	✓	01-APR-2014	08-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314,	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB, R01_250314_CM	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN	25-MAR-2014	01-APR-2014	08-APR-2014	✓	01-APR-2014	08-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314,	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB, R01_250314_CM	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP132)</b> VO_MW04_250314, VO_MW02_250314	VO_MW03_250314,	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b> VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	---	21-SEP-2014	----	30-MAR-2014	21-SEP-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	3	29	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	6	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	9.5	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	32	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	6	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	0	2	0.0	4.8	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	32	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)





Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with echange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074B: Oxygenated Compounds	4021654-002	----	Vinyl Acetate	108-05-4	59.9 %	61.4-134%	Recovery less than lower control limit
EP074E: Halogenated Aliphatic Compounds	4021654-002	----	1,3-Dichloropropane	142-28-9	123 %	79-121%	Recovery greater than upper control limit
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1406589-004	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035F: Dissolved Mercury by FIMS	ES1406589-002	Anonymous	Mercury	7439-97-6	62.5 %	70-130%	Recovery less than lower data quality objective
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1406590-019	VH_X_MW07_250314	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	11	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	6	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	32	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	11	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	6	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	0	2	0.0	4.8	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	32	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406590**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : SN/SB/CM/KB</b></p>	<p><b>Page : 1 of 5</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 26-MAR-2014</b></p> <p><b>Client Requested Due Date : 04-APR-2014</b></p>	<p><b>Issue Date : 28-MAR-2014 11:25</b></p> <p><b>Scheduled Reporting Date : <b>04-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 5 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 1.8°C - Ice present</b></p> <p><b>No. of samples received : 38</b></p> <p><b>No. of samples analysed : 38</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample ID TS4, TS6 and TB1 received as TS5, TS7 and TB6 respectively on jar, lab will follow the jar ID.**
- **Sample Trip Blank not received in water sample but received TS4 instead, lab will analysis for Btex analysis.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406590-014	25-MAR-2014 15:00	TS5						✓	
ES1406590-015	25-MAR-2014 15:00	TS7						✓	
ES1406590-016	25-MAR-2014 15:00	TB4						✓	
ES1406590-017	25-MAR-2014 15:00	TB6						✓	
ES1406590-030	25-MAR-2014 15:00	VL_MW02_2.0							✓
ES1406590-031	25-MAR-2014 15:00	VB_MW05_2.0				✓	✓		✓
ES1406590-032	25-MAR-2014 15:00	VM_MW04_3.0		✓		✓			✓
ES1406590-034	25-MAR-2014 12:00	VU_MW12_3.2							✓
ES1406590-035	25-MAR-2014 12:30	VU_MW12_4.1							✓
ES1406590-036	25-MAR-2014 17:00	VU_MW10_2.2	✓		✓				✓
ES1406590-037	25-MAR-2014 15:00	TSC-5						✓	
ES1406590-038	25-MAR-2014 15:00	TSC-7						✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by	WATER - EG093B-T Total Metals in Saline Water - Suite B by
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314	✓							
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314	✓							
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN	✓							
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314			✓		✓		✓	
ES1406590-005	27-MAR-2014 15:00	VO_MW03_250314				✓		✓		✓
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314				✓		✓		✓
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314	✓							
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314	✓							
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314	✓							
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN		✓						
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314			✓		✓		✓	
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314			✓		✓		✓	



Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG035F Dissolved metals in saline water by ORC-ICPMS	WATER - EG035A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG035B-F Dissolved Metals in Saline Water Suite B by ICPMS	WATER - EG035B-T Total Metals in Saline Water - Suite B by ICPMS
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314				✓		✓		✓	
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314				✓		✓		✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314							✓	
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314							✓	
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN							✓	
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314			✓		✓			
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314			✓		✓			
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314			✓		✓			
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314							✓	
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314							✓	
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314							✓	
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN								✓
ES1406590-011	25-MAR-2014 15:00	TRIP SPIKE-2				✓				
ES1406590-012	25-MAR-2014 15:00	TRIP SPIKE 4				✓				
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO		✓						
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314		✓						
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓						
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓						
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314		✓						
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓						
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314	✓	✓			✓			
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314	✓	✓			✓			
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314	✓	✓			✓			
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314	✓	✓			✓			
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB	✓	✓			✓			
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB	✓	✓			✓			
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314	✓	✓			✓			



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314		✓		
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314		✓		
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN		✓		
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314	✓			
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314	✓			
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314	✓			
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314		✓		
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314		✓		
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314		✓		
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN		✓		
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO				✓
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314		✓		
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓		
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓		
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314			✓	
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓		
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314			✓	
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314			✓	
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314			✓	
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314			✓	
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB			✓	
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB			✓	
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314			✓	
ES1406590-033	25-MAR-2014 15:00	R01_250314_CM				✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406590</b>		
<b>Amendment</b>	: <b>1</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 5
<b>Order number</b>	: 0237747		
<b>C-O-C number</b>	: ----	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>Site</b>	: ----		
<b>Sampler</b>	: SN/SB/CM/KB	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

Date Samples Received	: 26-MAR-2014	Issue Date	: 17-APR-2014 14:51
Client Requested Due Date	: 22-APR-2014	Scheduled Reporting Date	: <b>22-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 1.8°C - Ice present
No. of coolers/boxes	: 5 HARD	No. of samples received	: 38
Security Seal	: Intact.	No. of samples analysed	: 38

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample ID TS4, TS6 and TB1 received as TS5, TS7 and TB6 respectively on jar, lab will follow the jar ID.**
- **Sample Trip Blank not received in water sample but received TS4 instead, lab will analysis for Btex analysis.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406590-014	25-MAR-2014 15:00	TS5						✓	
ES1406590-015	25-MAR-2014 15:00	TS7						✓	
ES1406590-016	25-MAR-2014 15:00	TB4						✓	
ES1406590-017	25-MAR-2014 15:00	TB6						✓	
ES1406590-030	25-MAR-2014 15:00	VL_MW02_2.0							✓
ES1406590-031	25-MAR-2014 15:00	VB_MW05_2.0				✓	✓		✓
ES1406590-032	25-MAR-2014 15:00	VM_MW04_3.0		✓		✓			✓
ES1406590-034	25-MAR-2014 12:00	VU_MW12_3.2							✓
ES1406590-035	25-MAR-2014 12:30	VU_MW12_4.1							✓
ES1406590-036	25-MAR-2014 17:00	VU_MW10_2.2	✓		✓				✓
ES1406590-037	25-MAR-2014 15:00	TSC-5						✓	
ES1406590-038	25-MAR-2014 15:00	TSC-7						✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314	✓							
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314	✓							
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN	✓							
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314			✓		✓			✓
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314			✓			✓		✓
	27-MAR-2014 15:00	VO_MW03_250314				✓			✓	
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314			✓	✓		✓	✓	✓
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314	✓							
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314	✓							
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314	✓							
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN		✓						
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314			✓					





			WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG039A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG039A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG039A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG039B-F Dissolved Metals in Saline Water Suite B by
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓					
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓					
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓					

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG038B-T Total Metals in Saline Water -Suite B by	WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by	WATER - EG094B-F Dissolved Metals in fresh water Suite B by	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314						✓		✓
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314						✓		✓
	27-MAR-2014 15:00	VO_MW03_250314	✓							
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314	✓					✓		✓
ES1406590-011	25-MAR-2014 15:00	TRIP SPIKE-2							✓	
ES1406590-012	25-MAR-2014 15:00	TRIP SPIKE 4							✓	
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO					✓			
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314		✓	✓		✓			
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓	✓		✓			
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓	✓		✓			
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314					✓			
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓	✓		✓			
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314				✓	✓			
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314				✓	✓			
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314				✓	✓			
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314				✓	✓			
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB				✓	✓			
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB				✓	✓			
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314				✓	✓			



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314		✓			✓		
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314		✓			✓		
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN		✓			✓		
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314				✓			
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314				✓			
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314				✓			
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314		✓			✓		
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314		✓			✓		
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314		✓			✓		
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN			✓		✓		
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO							✓
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314					✓		
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314					✓		
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314					✓		
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314						✓	
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314					✓		
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314	✓					✓	
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314	✓					✓	
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314	✓					✓	
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314	✓					✓	
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB	✓					✓	
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB	✓					✓	
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314	✓					✓	
ES1406590-033	25-MAR-2014 15:00	R01_250314_CM							✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

DADELAIDE 21, Burns Road, Peonka SA 5095  
Ph: 08 8389 0900 E: ade@als.com.au

DNEWCASSTLE 5 Rose Gum Road, Warrook NSW 2304  
Ph: 02 4956 5433 E: samples.newcasstle@alsglobal.com

OS'DNEY 277-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8794 8555 E: samples.os'dney@alsglobal.com

**TURNAROUND REQUIREMENTS:** Standard TAT (List due date):  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

Ultra Trace Organics)

ALS QUOTE NO.:

CONTACT PH: 0401 776 290

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY: S. NUTHALAVATI

RECEIVED BY: Sep

DATE/TIME: 26/3/14 1900

DATE/TIME: 25.03.14

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

**FOR LABORATORY USE ONLY (Circle)**

Quality Seal Intact?

Freeze/Freeze Labels present upon receipt?

Random Sample Temperature on Receipt?

Other Comment:

RECEIVED BY:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

Ultra Trace Organics)

ALS QUOTE NO.:

CONTACT PH: 0401 776 290

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY: S. NUTHALAVATI

RECEIVED BY: Sep

DATE/TIME: 26/3/14 1900

DATE/TIME: 25.03.14

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

Ultra Trace Organics)

ALS QUOTE NO.:

CONTACT PH: 0401 776 290

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY: S. NUTHALAVATI

RECEIVED BY: Sep

DATE/TIME: 26/3/14 1900

DATE/TIME: 25.03.14

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

DATE/TIME:

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

Ultra Trace Organics)









**CHAIN OF CUSTODY**

GADELAIDE 21 Burma Road Pecook SA 5005  
 Ph: 08 9350 0800 E: [info@als.com.au](mailto:info@als.com.au)  
 LURUPAINE 39 Stend Street Sturtford QLD 4053  
 Ph: 07 3200 7255 E: [info@als.com.au](mailto:info@als.com.au)  
 GUNNERS CREEK 16 Millers Road Chirnside Park VIC 3040  
 Ph: 07 7471 5500 E: [info@als.com.au](mailto:info@als.com.au)

DMACKAY 78 Harbour Road Mackay QLD 4740  
 Ph: 07 4944 0177 E: [info@als.com.au](mailto:info@als.com.au)  
 DUNDURRUM 2-1 Vespa Road Springvale VIC 3171  
 Ph: 03 9349 8000 E: [info@als.com.au](mailto:info@als.com.au)  
 DUNDURRUM 27 Sydney Road Mudgee NSW 2850  
 Ph: 02 6372 6750 E: [info@als.com.au](mailto:info@als.com.au)

ONECASTLE 5 Ross Gum Road Warroak NSW 2304  
 Ph: 02 4963 3433 E: [info@als.com.au](mailto:info@als.com.au)  
 GUNOWRA 4/13 Geary Place North Nowra NSW 2541  
 Ph: 02 4423 2009 E: [info@als.com.au](mailto:info@als.com.au)  
 GUNOWRA 110 Hood Way Malaga WA 8000  
 Ph: 08 9359 7655 E: [info@als.com.au](mailto:info@als.com.au)

DRYDNEY 277 289 Woodpark Road S. Hillfield NSW 2164  
 Ph: 02 8764 1855 E: [info@als.com.au](mailto:info@als.com.au)  
 TOWNVILLE 14-15 Deane Court Bohle QLD 4818  
 Ph: 07 4746 0800 E: [info@als.com.au](mailto:info@als.com.au)  
 WOLLONGONG 59 Kenny Street Wollongong NSW 2500  
 Ph: 02 4225 3128 E: [info@als.com.au](mailto:info@als.com.au)

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** Katie Bristow  
**COC emailed to ALS?** (YES / NO) (NO)  
**Email Reports to (will default to PM if no other addresses are listed):** [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)  
**Email Invoice to (will default to PM if no other addresses are listed):** [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**ALS QUOTE NO.:**  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0405 240794  
**EDD FORMAT (or default):**

**RELINQUISHED BY:** Katie Bristow  
**DATE/TIME:** 25/3/14

**RECEIVED BY:** Sep  
**DATE/TIME:** 26/3/14 1900

**FOR LABORATORY USE ONLY (Circle):**  
 Clarity Seal intact? Yes No N/A  
 Free of / no visible breaks present in cap / vessel? Yes No N/A  
 Random Sample / Comparative / Split Receipt? Yes No N/A  
 Other comment:

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
34	VU-MN12-3.2	25/3/14 12:00	S	NA	1xJaw X	13 METALS (S-3) + 8 METALS (S-2) PHENOLS (S-24) B, Mo, Ti, Se ASBESTOS VOC PCB PFOS/PFOA pH/CEC PSD sieve / TOC Leco EC Saturated Paste Ultra Trace PAH Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific CC analysis etc.
35	VU-MN12-4.1	25/3/14 12:20	S	NA	1xJaw X		
36	VU-MN10-2.2	25/3/14 5:00pm	S	NA	1xJaw X		
			S				
			S				
			S				
			S				
			S				
			S				
			S				
			S				
			S				
			S				
<b>TOTAL</b>							

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.







**CHAIN OF CUSTODY**  
**Environmental**  
 ALS Laboratory  
 please tick →

LAB: 21 Berna Road, Pooka QLD 4039  
 Ph: 08 5539 0660 E: aledana@alsglobal.com  
 CHERIDAN 32 Swan Street, Stafford QLD 4053  
 Ph: 07 3243 7222 E: samples.cheridan@alsglobal.com  
 C/O: CASTLE 48 Calderwood Drive, Clifton QLD 4030  
 Ph: 07 7411 9600 E: graham@alsglobal.com

DUCKY 78 High Road, Mackay QLD 4240  
 Ph: 07 4594 0177 E: mackay@alsglobal.com  
 MELBOURNE 2-4 Wessall Road, Springvale VIC 3171  
 Ph: 03 9541 9600 E: samples.melbourne@alsglobal.com  
 MILDREY 27 Sydney Road, Mudgee NSW 2850  
 Ph: 02 8372 8738 E: mudgee@alsglobal.com

DNEVCASTLE 8 Ross Gum Road, Warabrook NSW 2304  
 Ph: 02 4588 5438 E: samples.dnevcastle@alsglobal.com  
 DNOWRA 419 Geary Place, North Nowra NSW 2541  
 Ph: 02 4423 2083 E: nowra@alsglobal.com  
 DPERTH 10 Hot Way Mall, Perth WA 6000  
 Ph: 08 9208 7655 E: samples.perth@alsglobal.com

DSTONEY 277-289 Woodpark Road, Smithfield NSW 2164  
 Ph: 02 8784 8535 E: samples.dstone@alsglobal.com  
 DTONSW 11/14-15 Derrin Court, Ennis QLD 4818  
 Ph: 07 4790 0500 E: tonsw@alsglobal.com  
 DWOLLONGONG 89 Kenny Street, Wollongong NSW 2500  
 Ph: 02 4226 3125 E: wollongong@alsglobal.com

CLIENT: ERM OFFICE: PYRMONT PROJECT: VALES POINT POWER STATION ORDER NUMBER: 0237747 PROJECT MANAGER: JOHN EWING CONTACT PH: 0401 776 290

TURNAROUND REQUIREMENTS:  Standard TAT (last due date);  Non Standard or urgent TAT (last due date); (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ALS QUOTE NO.:

SAMPLER: *Stephanie Brookes* SAMPLER MOBILE: *0450 099834* EDD FORMAT (for default): *S Brookes* DATE/TIME: *25-3-14* RECEIVED BY: *Sep* DATE/TIME: *26/3/14* 1900

COC emailed to ALS? (YES / NO) Email Reports to (will default to PM if no other addresses are listed): *synphony.dellanorth@erm.com* Email invoice to (will default to PM if no other addresses are listed): *synphony.dellanorth@erm.com* COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

COG SEQUENCE NUMBER (Child)	COG: 1	2	3	4	5	6	7
RECEIVED BY:							
RELINQUISHED BY:							
DATE/TIME:							

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite prices) where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals
--	----------------	---------------------------------	-----------------------------	-----	-----	----------------------	---------------------	-----------	-----------------	--------------------

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	refer to	TOTAL CONTAINERS	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Additional Information	
18	VH-X-MW02-250314	25.3.14	W			5			X	X								
19	VH-X-MW07-250314	"	W			5			X	X								
20	VH-X-MW08-250314	"	W			5			X	X								
21	VH-X-MW09-250314	"	W			5	X		X	X								
22	VH-X-MW10-250314	"	W			5			X	X								
23	V8-MW02-250314	"	W			6	X		X	X								
24	V8-MW01-250314	"	W			6	X		X	X								
25	VI-MW01-250314	"	W			6	X		X	X								
26	VA-MW02-250314	"	W			6	X		X	X								
27	DO2-250314-S8	"	W			6	X		X	X								
28	TO1-250314-S8	"	W			6	X		X	X								
29	VA-MW01-250314	"	W			6	X		X	X								
<b>TOTAL</b>																		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VA = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speculation bottle; SP = Sulfuric Preserved Plastic; F = Fomaldhyde Preserved Glass; Z = Zinc Acidic Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.

PLEASE PUT IN VOC VIAL ON HOLD





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406762</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SB, KB, CM <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 19  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAR-2014 <b>Issue Date</b> : 07-APR-2014  <b>No. of samples received</b> : 12 <b>No. of samples analysed</b> : 12
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200Q: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination**
- **EA200Q: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.**  
**Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).**  
**Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW10_5.5	VO_MW15_4.5	D01_260314_SB	VO_MW14_4.2	VO_MW19_0.1
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-001	ES1406762-002	ES1406762-003	ES1406762-004	ES1406762-005
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.9	4.1	4.1	4.1	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	13.0	12.4	10.3	15.1	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Sample weight (dry)	----	0.01	g	----	----	----	----	766
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	0.766
Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	----	<0.1
Fibrous Asbestos	----	0.002	g	----	----	----	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	----	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	----	----	----	----	<0.001
Trace Asbestos Detected	----	5	Fibres	----	----	----	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	<10	<10	20	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	12	5	4	----
Cobalt	7440-48-4	2	mg/kg	----	<2	<2	<2	----
Copper	7440-50-8	5	mg/kg	----	<5	<5	7	----
Lead	7439-92-1	5	mg/kg	----	<5	<5	<5	----
Manganese	7439-96-5	5	mg/kg	----	<5	<5	50	----
Molybdenum	7439-98-7	2	mg/kg	----	<2	<2	<2	----
Nickel	7440-02-0	2	mg/kg	----	<2	<2	4	----
Selenium	7782-49-2	5	mg/kg	----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	43	8	11	----
Zinc	7440-66-6	5	mg/kg	----	<5	<5	19	----
Thallium	7440-28-0	5	mg/kg	----	<5	<5	<5	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW10_5.5	VO_MW15_4.5	D01_260314_SB	VO_MW14_4.2	VO_MW19_0.1
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-001	ES1406762-002	ES1406762-003	ES1406762-004	ES1406762-005
<b>EG005T: Total Metals by ICP-AES - Continued</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	18	----	----	----	----
Copper	7440-50-8	5	mg/kg	15	----	----	----	----
Lead	7439-92-1	5	mg/kg	5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	7	----	----	----	----
Zinc	7440-66-6	5	mg/kg	10	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW10_5.5	VO_MW15_4.5	D01_260314_SB	VO_MW14_4.2	VO_MW19_0.1
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-001	ES1406762-002	ES1406762-003	ES1406762-004	ES1406762-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VU_MW10_5.5	VO_MW15_4.5	D01_260314_SB	VO_MW14_4.2	VO_MW19_0.1
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-001	ES1406762-002	ES1406762-003	ES1406762-004	ES1406762-005
<b>EP080: BTEXN - Continued</b>								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	107	106	110	117	----
2-Chlorophenol-D4	93951-73-6	0.1	%	95.6	79.1	89.5	101	----
2,4,6-Tribromophenol	118-79-6	0.1	%	80.8	62.9	71.5	68.1	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	79.2	77.3	77.7	75.3	----
Anthracene-d10	1719-06-8	0.1	%	89.5	88.6	84.1	94.4	----
4-Terphenyl-d14	1718-51-0	0.1	%	85.9	87.4	82.7	81.2	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	99.5	105	100	----
Toluene-D8	2037-26-5	0.1	%	106	92.4	104	98.1	----
4-Bromofluorobenzene	460-00-4	0.1	%	115	98.4	101	96.2	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	4.2	----	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	11.8	17.1	28.6	9.1	10.7
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	<10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	4	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	<2	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Manganese	7439-96-5	5	mg/kg	30	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	12	----	----	----	----
Zinc	7440-66-6	5	mg/kg	7	----	----	----	----
Thallium	7440-28-0	5	mg/kg	<5	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	<2	3	6	5
Copper	7440-50-8	5	mg/kg	----	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	----	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	----	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	----	<5	<5	<5	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	<5	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	----	----
<b>EP074H: Naphthalene</b>								



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EP074H: Naphthalene - Continued</b>								
Naphthalene	91-20-3	5	mg/kg	----	<5	<5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	79.4	77.5	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	119	123	----	----
Toluene-D8	2037-26-5	0.1	%	----	94.3	93.9	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	88.6	91.4	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	105	110	95.2	99.9	113





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VO_MW19_2.0	VB_SB01_1.5	VB_SB01_2.7	VG_MW01_1.9	VG_MW03_1.5
				26-MAR-2014 15:00	27-MAR-2014 09:00	27-MAR-2014 09:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406762-006	ES1406762-011	ES1406762-012	ES1406762-013	ES1406762-014
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	97.9	97.2	76.8	93.5	84.6
2.4.6-Tribromophenol	118-79-6	0.1	%	64.7	83.4	68.5	69.6	68.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	84.5	92.4	69.9	84.3	84.6
Anthracene-d10	1719-06-8	0.1	%	86.6	87.2	87.1	95.6	91.9
4-Terphenyl-d14	1718-51-0	0.1	%	86.8	91.7	74.2	95.2	87.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	112	105	110	104	112
Toluene-D8	2037-26-5	0.1	%	108	92.1	92.5	102	96.1
4-Bromofluorobenzene	460-00-4	0.1	%	105	84.3	87.2	96.7	97.4



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VO\_MW17\_2.6

Client sampling date / time

27-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1406762-015				
<b>EA002 : pH (Soils)</b>								
pH Value		0.1	pH Unit	5.6				
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)		1.0	%	15.6				
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5				
Barium	7440-39-3	10	mg/kg	<10				
Beryllium	7440-41-7	1	mg/kg	<1				
Boron	7440-42-8	50	mg/kg	<50				
Cadmium	7440-43-9	1	mg/kg	<1				
Chromium	7440-47-3	2	mg/kg	3				
Cobalt	7440-48-4	2	mg/kg	<2				
Copper	7440-50-8	5	mg/kg	<5				
Lead	7439-92-1	5	mg/kg	<5				
Manganese	7439-96-5	5	mg/kg	5				
Molybdenum	7439-98-7	2	mg/kg	<2				
Nickel	7440-02-0	2	mg/kg	<2				
Selenium	7782-49-2	5	mg/kg	<5				
Vanadium	7440-62-2	5	mg/kg	7				
Zinc	7440-66-6	5	mg/kg	<5				
Thallium	7440-28-0	5	mg/kg	<5				
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1				
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5				
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5				
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5				
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1				
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5				
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5				
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5				
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5				
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5				
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5				



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VO\_MW17\_2.6

Client sampling date / time

27-MAR-2014 15:00

Compound	CAS Number	LOR	Unit	ES1406762-015	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	---	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	---	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	---	---	---	---
C10 - C14 Fraction	----	50	mg/kg	<50	---	---	---	---
C15 - C28 Fraction	----	100	mg/kg	<100	---	---	---	---
C29 - C36 Fraction	----	100	mg/kg	<100	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	---	---	---	---
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	---	---	---	---



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

VO\_MW17\_2.6

---

---

---

---

Client sampling date / time

27-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406762-015	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued

>C16 - C34 Fraction	----	100	mg/kg	<100	---	---	---	---
>C34 - C40 Fraction	----	100	mg/kg	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	0.2	mg/kg	<0.2	---	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	---	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	---	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	---	---	---	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	---	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	---	---	---	---
Naphthalene	91-20-3	1	mg/kg	<1	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates

Phenol-d6	13127-88-3	0.1	%	102	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	77.8	---	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	64.9	---	---	---	---

### EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	77.1	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%	83.8	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	108	---	---	---	---

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	92.0	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	94.2	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_260314\_SB

---

---

---

---

Client sampling date / time

26-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406762-007	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_260314\_SB

---

---

---

---

Client sampling date / time

26-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406762-007	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_260314\_SB**

----

----

----

----

Client sampling date / time

26-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406762-007	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	29.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	54.7	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	63.2	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	57.9	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	74.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	68.3	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.7	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	90.3	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.3	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VO_MW19_0.1 - 26-MAR-2014 15:00	Pale brown clay soil with grey and red rocks plus some quartz grains plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406762</b>	<b>Page</b>	: 1 of 22
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 27-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 07-APR-2014
<b>Sampler</b>	: SB, KB, CM	<b>No. of samples received</b>	: 12
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 12
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3370449)</b>									
ES1406138-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.3	6.2	0.0	0% - 20%
ES1406762-001	VU_MW10_5.5	EA002: pH Value	----	0.1	pH Unit	4.9	4.9	0.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3367108)</b>									
ES1406759-014	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.7	17.1	3.7	0% - 50%
ES1406762-002	VO_MW15_4.5	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.4	11.9	3.9	0% - 50%
<b>EA055: Moisture Content (QC Lot: 3367109)</b>									
ES1406770-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	11.3	0.9	0% - 50%
ES1406845-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.3	20.5	0.7	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3372955)</b>									
ES1406630-005	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	23	16	34.7	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	11	38.6	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit		
ES1406762-006	VO_MW19_2.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	5	29.7	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	30	27	9.4	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3372955) - continued</b>									
ES1406762-006	VO_MW19_2.0	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	7	8	0.0	No Limit
		EG005T: Thallium	7440-28-0	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3372956)</b>									
ES1406630-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406762-006	VO_MW19_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3368658)</b>									
ES1406903-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406903-009	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366387) - continued</b>									
ES1406759-002	Anonymous	EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3366387)</b>									
ES1406759-002	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3366387)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074H: Naphthalene (QC Lot: 3366387) - continued</b>									
ES1406759-002	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3366417)</b>									
ES1406762-001	VU_MW10_5.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406762-014	VG_MW03_1.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3366417)</b>									
ES1406762-001	VU_MW10_5.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3366417) - continued</b>									
ES1406762-001	VU_MW10_5.5	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406762-014	VG_MW03_1.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366386)</b>									
ES1406759-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406759-019	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366390)</b>									
ES1406762-001	VU_MW10_5.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406776-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366416)</b>									
ES1406762-001	VU_MW10_5.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406762-014	VG_MW03_1.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366386)</b>									
ES1406759-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366386) - continued</b>									
ES1406759-019	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366390)</b>									
ES1406762-001	VU_MW10_5.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406776-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366416)</b>									
ES1406762-001	VU_MW10_5.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406762-014	VG_MW03_1.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3366386)</b>									
ES1406759-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406759-019	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3366390)</b>									
ES1406762-001	VU_MW10_5.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1406776-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3366390) - continued</b>										
ES1406776-003	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3370384)</b>										
ES1406713-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	116	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.016	0.016	0.0	0% - 50%	
ES1406804-003	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.353	0.388	9.3	0% - 20%	
		EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.066	0.061	7.5	0% - 20%	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
ES1406804-003	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.052	0.048	6.6	0% - 20%	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3369316)</b>								
		ES1406589-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0
ES1406729-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406763-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406763-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406763-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	

Page : 10 of 22  
 Work Order : ES1406762  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

*Laboratory Duplicate (DUP) Report*

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
<b>EP080: BTEXN (QC Lot: 3370481) - continued</b>									
ES1406763-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372955)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	110	92	130	
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	110	91	125	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	115	98	128	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	105	80	136	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16.0 mg/kg	109	89	123	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	111	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	104	86	124	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	107	97	131	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	109	70	130	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	109	93	131	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	75	131	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	116	98	128	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	81	133	
EG005T: Thallium	7440-28-0	5	mg/kg	<5	5.96 mg/kg	75.5	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372956)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.8	70	105	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3368658)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	76.8	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3366387)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	92.0	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	99.7	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	104	63	129	
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	96.8	64	130	
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	99.9	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	100	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	105	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	102	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3366387)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	78.8	29.6	156	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3366387) - continued</b>									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	97.2	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	90.4	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	96.1	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3366387)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	92.8	54	126	
<b>EP074D: Fumigants (QCLot: 3366387)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	96.6	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.0	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	86.2	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	81.7	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	93.6	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366387)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	88.6	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	95.1	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	97.2	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	92.5	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	104	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	101	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	99.4	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	98.0	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	91.0	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	101	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	103	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	91.5	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	99.3	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366387) - continued</b>									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	106	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.5	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	82.5	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	69.0	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.4	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.6	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	93.6	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	83.6	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	92.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	107	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366387)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.8	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	106	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	105	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	103	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	107	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	105	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	103	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	105	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3366387)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	109	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	85.2	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	82.5	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	86.7	60	126	
<b>EP074H: Naphthalene (QCLot: 3366387)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	84.3	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	87.7	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	81.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	95.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	106	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.2	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	81.2	76.4	114	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417) - continued</b>									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.6	57	111	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	93.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.3	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	101	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.3	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	101	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.2	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	96.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	98.3	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366386)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.4	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366390)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	106	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.1	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	115	64	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366386)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.1	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366390)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	102	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	112	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	101	63	131	
<b>EP080: BTEXN (QCLot: 3366386)</b>									



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3366386) - continued</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.9	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.1	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.3	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	75.5	62	138	
<b>EP080: BTEXN (QCLot: 3366390)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	109	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	115	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	107	58	118	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	103	60	120	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	114	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.5	62	138	

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370384)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	84	116	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	84	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.1	77	117	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.7	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366265)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	52.3	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	81.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	82.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	94.8	62.7	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366265) - continued</b>									
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	92.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	93.0	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	86.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	118	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	90.0	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	99.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	79.5	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	87.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	97.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	91.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	101	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	88.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	88.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	97.9	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	96.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	97.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	102	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	93.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	105	61.7	117	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265) - continued</b>								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	101	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	102	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	100	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	102	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366264)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	99.1	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	112	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366264)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.0	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	101	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127
<b>EP080: BTEXN (QCLot: 3370481)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	117	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	118	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	119	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	116	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	117	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Recovery Limits (%)
				Concentration	MS	Low High



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372955)</b>							
ES1406630-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70	130
		EG005T: Selenium	7782-49-2	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	99.9	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372956)</b>							
ES1406630-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.1	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3368658)</b>							
ES1406903-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.7	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366387)</b>							
ES1406759-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	121	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	103	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366387)</b>							
ES1406759-002	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.6	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>							
ES1406762-001	VU_MW10_5.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	59.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>							
ES1406762-001	VU_MW10_5.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.7	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366386)</b>							
ES1406759-002	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.6	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366390)</b>							
ES1406762-001	VU_MW10_5.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.0	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>							
ES1406762-001	VU_MW10_5.5	EP071: C10 - C14 Fraction	----	640 mg/kg	95.5	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	84.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.7	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366386)</b>							
ES1406759-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.4	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366390)</b>							
ES1406762-001	VU_MW10_5.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.7	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>							
ES1406762-001	VU_MW10_5.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.1	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.8	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	52	132
<b>EP080: BTEXN (QCLot: 3366386)</b>							
ES1406759-002	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	76.5	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.2	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.0	70	130
<b>EP080: BTEXN (QCLot: 3366390)</b>							
ES1406762-001	VU_MW10_5.5	EP080: Benzene	71-43-2	2.5 mg/kg	107	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	111	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	107	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	109	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	110	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370384)</b>							
ES1406713-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	103	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	105	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	115	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	123	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	124	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	118	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	95.5	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>							
ES1406590-033	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481)</b>							
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>							





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366390) - continued</b>										
ES1406762-001	VU_MW10_5.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	99.7	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3366390)</b>										
ES1406762-001	VU_MW10_5.5	EP080: Benzene	71-43-2	2.5 mg/kg	107	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	111	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	107	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	109	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	110	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>										
ES1406762-001	VU_MW10_5.5	EP071: C10 - C14 Fraction	----	640 mg/kg	95.5	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	84.5	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.7	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>										
ES1406762-001	VU_MW10_5.5	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.1	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.8	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>										
ES1406762-001	VU_MW10_5.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.2	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	59.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>										
ES1406762-001	VU_MW10_5.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.9	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.7	----	70	130	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3368658)</b>										
ES1406903-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.7	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372955)</b>										
ES1406630-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	104	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	105	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	102	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	100	----	70	130	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	99.9	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372956)</b>										



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372956) - continued</b>											
ES1406630-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.1	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>											
ES1406590-033	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370384)</b>											
ES1406713-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	103	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	105	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	115	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	123	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	124	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	118	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	95.5	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481)</b>											
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>											
ES1406740-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3370481)</b>											
ES1406740-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	115	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	116	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	119	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	120	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406762</b>	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAR-2014
C-O-C number	: ----	Issue Date	: 07-APR-2014
Sampler	: SB, KB, CM	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved (EA002)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0	VO_MW15_4.5, VO_MW14_4.2,	26-MAR-2014	02-APR-2014	02-APR-2014	✓	02-APR-2014	02-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EA002)</b> VO_MW17_2.6		27-MAR-2014	02-APR-2014	03-APR-2014	✓	02-APR-2014	02-APR-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5	VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9,	26-MAR-2014	----	----	----	31-MAR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VB_SB01_1.5, VO_MW17_2.6	VB_SB01_2.7,	27-MAR-2014	----	----	----	31-MAR-2014	10-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VO_MW19_0.1		26-MAR-2014	---	22-SEP-2014	----	07-APR-2014	04-OCT-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5	VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9,	26-MAR-2014	03-APR-2014	22-SEP-2014	✓	03-APR-2014	22-SEP-2014	✓
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VB_SB01_1.5, VO_MW17_2.6	VB_SB01_2.7,	27-MAR-2014	03-APR-2014	23-SEP-2014	✓	03-APR-2014	23-SEP-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5	VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	03-APR-2014	23-APR-2014	✓	04-APR-2014	23-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VB_SB01_1.5, VO_MW17_2.6	VB_SB01_2.7	27-MAR-2014	03-APR-2014	24-APR-2014	✓	04-APR-2014	24-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP071)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5	VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	01-APR-2014	09-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Soil Glass Jar - Unpreserved (EP071)</b> VB_SB01_1.5, VO_MW17_2.6	VB_SB01_2.7	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5,	VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074G: Trihalomethanes</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VB_SB01_1.5, VB_SB01_2.7	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5 VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	01-APR-2014	09-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VB_SB01_1.5, VO_MW17_2.6 VB_SB01_2.7	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5 VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	01-APR-2014	09-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VB_SB01_1.5, VO_MW17_2.6 VB_SB01_2.7	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP080: BTEXN</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5 VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	31-MAR-2014	09-APR-2014	✓	01-APR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VB_SB01_1.5, VO_MW17_2.6 VB_SB01_2.7	27-MAR-2014	31-MAR-2014	10-APR-2014	✓	01-APR-2014	10-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b> VU_MW10_5.5, D01_260314_SB, VO_MW19_2.0, VG_MW03_1.5 VO_MW15_4.5, VO_MW14_4.2, VG_MW01_1.9	26-MAR-2014	31-MAR-2014	09-APR-2014	✓	01-APR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VB_SB01_1.5, VO_MW17_2.6 VB_SB01_2.7	27-MAR-2014	31-MAR-2014	10-APR-2014	✓	01-APR-2014	10-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_260314_SB	26-MAR-2014	02-APR-2014	22-SEP-2014	✓	02-APR-2014	22-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_260314_SB	26-MAR-2014	----	----	----	02-APR-2014	23-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) R01_260314_SB	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_260314_SB	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_260314_SB	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_260314_SB	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) R01_260314_SB	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	4	39	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							



Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200Q	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)T: PAH Surrogates	ES1406762-012	VB_SB01_2.7	2-Fluorobiphenyl	321-60-8	69.9 %	70-122 %	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406762</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: SB, KB, CM		

#### Dates

<b>Date Samples Received</b>	: 27-MAR-2014	<b>Issue Date</b>	: 31-MAR-2014 09:43
<b>Client Requested Due Date</b>	: 04-APR-2014	<b>Scheduled Reporting Date</b>	: <b>04-APR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 2.3°C - Ice present
<b>No. of coolers/boxes</b>	: 5 HARD	<b>No. of samples received</b>	: 12
<b>Security Seal</b>	: Not intact.	<b>No. of samples analysed</b>	: 12

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample Trip Blank and Trip Spike not received by ALS Sydney.**
- **Sample T01\_260314\_SB will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA200N Asbestos Quantitation by WAINPEM	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl.	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406762-001	26-MAR-2014 15:00	VU_MW10_5.5	✓							✓
ES1406762-002	26-MAR-2014 15:00	VO_MW15_4.5	✓		✓			✓	✓	
ES1406762-003	26-MAR-2014 15:00	D01_260314_SB	✓		✓			✓	✓	
ES1406762-004	26-MAR-2014 15:00	VO_MW14_4.2	✓		✓			✓	✓	
ES1406762-005	26-MAR-2014 15:00	VO_MW19_0.1		✓						
ES1406762-006	26-MAR-2014 15:00	VO_MW19_2.0	✓		✓			✓	✓	
ES1406762-011	27-MAR-2014 09:00	VB_SB01_1.5				✓	✓			✓
ES1406762-012	27-MAR-2014 09:00	VB_SB01_2.7				✓	✓			✓
ES1406762-013	26-MAR-2014 15:00	VG_MW01_1.9								✓
ES1406762-014	26-MAR-2014 15:00	VG_MW03_1.5								✓
ES1406762-015	27-MAR-2014 15:00	VO_MW17_2.6	✓		✓			✓	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8
ES1406762-007	26-MAR-2014 15:00	R01_260314_SB	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------













**ALS Environmental**

**CHAIN OF CUSTODY**  
ALS Laboratory  
Please tick →

D/DEL/ALDE 21 Burns Road, Pootah SA 5005  
Ph: 08 8359 0699 E: aledel@als.com.au

D/DEL/ALDE 32 Stuart Street, Stirling QLD 4058  
Ph: 07 3243 2222 E: samuel.kramer@als.com.au

D/DEL/ALDE 46 Callamondran Drive, Clifton QLD 4810  
Ph: 07 4747 5600 E: gashstone@als.com.au

D/DEL/ALDE 78 Harbour Road, Mackay QLD 4740  
Ph: 07 5944 0177 E: mackay@als.com.au

D/DEL/ALDE 24 Westall Road, Springvale VIC 3171  
Ph: 03 8549 2600 E: samuel.kramer@als.com.au

D/DEL/ALDE 27 Sydney Road, Mulgrave NSW 2850  
Ph: 02 6372 6735 E: mulgrave@als.com.au

D/DEL/ALDE 5 Ross Gunn Road, Warwick NSW 2304  
Ph: 02 5568 8438 E: samuel.kramer@als.com.au

D/DEL/ALDE 413 Cherry Tree North, Nowra NSW 2541  
Ph: 02 4423 2003 E: nowra@als.com.au

D/DEL/ALDE 01/040 Vinesy, Mudgee, NSW 2850  
Ph: 02 8208 7650 E: mudgee@als.com.au

D/DEL/ALDE 277-289 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8555 E: samuel.kramer@als.com.au

D/DEL/ALDE 14-15 Dennis Court, Bp/10 QLD 4818  
Ph: 07 4799 0600 E: bennett@als.com.au

D/DEL/ALDE 99 Kerry Street, Yooloona QLD 2500  
Ph: 02 4222 3125 E: yooloona@als.com.au

**CLIENT:** ERM

**OFFICE:** PYRMONT

**PROJECT:** VALES POINT POWER STATION

**ORDER NUMBER:** 0237747

**PROJECT MANAGER:** JOHN EWING

**CONTACT PH:** 0401 776 290

**TURNOVER REQUIREMENTS:**  
Standard TAT may be longer for some tests eg. Ultra Trace Organics

Standard TAT (Last due date):  
 Non Standard or urgent TAT (Last due date):

**COC SEQUENCE NUMBER (Circle)**

**FOR LABORATORY USE ONLY (Circle)**

Yes No N/A

**SAMPLER:** *Stephane Brookes* **SAMPLER MOBILE:** *0450099834*

**COC emailed to ALS?** (YES / NO) **EDD FORMAT (or default):**

**RECEIVED BY:** *S Brookes* **DATE/TIME:** *26.3.14*

**RECEIVED BY:** *SBP* **DATE/TIME:** *27/3/14 1900*

**RECEIVED BY:** **DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**


LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CO <sub>2</sub>	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VLA_MW10-5.5	26.3.14	S	Subcon / Forward Lab / Split WO	1 jar X	X	X	X										HOLD.
2	VO_MW15-4.5	26.3.14	S	Lab / Analysis: <i>Envirolab</i>	1 jar	X	X	X										
3	DB1-260314-SB	26.3.14	S	Organised By / Date: <i>701-260314-SB</i>	1 jar	X	X	X										PLEASE SEND TO ENVIRALAB.
4	VO_MW14-4.2	26.3.14	S	Relinquished By / Date:	1 jar	X	X	X										
5	VO_MW19-0.1	26.3.14	S	Connote / Courier:	1 bag	X	X	X										
6	VO_MW19-2.0	26.3.14	S	WO No:	1 jar	X	X	X										
7	PO1-260314-SB	26.3.14	W	Attach By PO / Internal Sheet:	4	X	X	X										
8	TMD Blank		S		1 jar													
9	TMD Spike		S		1 jar													
10	TMD FSC		S		1 jar													
<b>TOTAL</b>																		

8-9 - not paid

\$10 per jar

Can not

Environmental Division  
Sydney  
Work Order  
**ES1406762**

Barcode: 

Telephone: +61-2-8784 8555

Water Container Codes: F = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; S = Sodium Hydroxide Preserved Plastic; AG = Amber V = VOA Via HCl Preserved; VS = VOA Via Sodium Bisulphate Preserved; AV = Airflight Unpreserved Vial; SS = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

Comments on likely contaminant levels, additions, or examples requiring specific QC analysis etc.

TAKING + BTEX  
BTEX only.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406908</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : GAVIN POWELL <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 28-MAR-2014 <b>Issue Date</b> : 07-APR-2014  <b>No. of samples received</b> : 6 <b>No. of samples analysed</b> : 6
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

				VK_SB02_3.9	D01_270314_GP	VG_MW02_3.5	TRIP SPIKE 5	TRIP BLANK 1
				27-MAR-2014 08:45	27-MAR-2014 08:45	27-MAR-2014 09:25	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406908-001	ES1406908-002	ES1406908-003	ES1406908-004	ES1406908-005
Compound	CAS Number	LOR	Unit					
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	9.9	10.4	8.5	----	----
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	6	5	4	----	----
Copper	7440-50-8	5	mg/kg	6	6	<5	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	<5	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	----
Zinc	7440-66-6	5	mg/kg	43	40	36	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_3.9	D01_270314_GP	VG_MW02_3.5	TRIP SPIKE 5	TRIP BLANK 1
				27-MAR-2014 08:45	27-MAR-2014 08:45	27-MAR-2014 09:25	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406908-001	ES1406908-002	ES1406908-003	ES1406908-004	ES1406908-005
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_3.9	D01_270314_GP	VG_MW02_3.5	TRIP SPIKE 5	TRIP BLANK 1
				27-MAR-2014 08:45	27-MAR-2014 08:45	27-MAR-2014 09:25	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406908-001	ES1406908-002	ES1406908-003	ES1406908-004	ES1406908-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_3.9	D01_270314_GP	VG_MW02_3.5	TRIP SPIKE 5	TRIP BLANK 1
				27-MAR-2014 08:45	27-MAR-2014 08:45	27-MAR-2014 09:25	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406908-001	ES1406908-002	ES1406908-003	ES1406908-004	ES1406908-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<b>0.6</b>	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<b>19.9</b>	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<b>1.8</b>	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VK_SB02_3.9	D01_270314_GP	VG_MW02_3.5	TRIP SPIKE 5	TRIP BLANK 1
				27-MAR-2014 08:45	27-MAR-2014 08:45	27-MAR-2014 09:25	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406908-001	ES1406908-002	ES1406908-003	ES1406908-004	ES1406908-005
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	9.6	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	3.5	<0.5
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	13.1	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	35.4	<0.2
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	102	----	----	----
Toluene-D8	2037-26-5	0.1	%	108	108	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	100	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	95.8	97.0	101	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	88.8	90.4	91.3	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	66.5	56.8	63.5	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.2	70.6	78.5	----	----
Anthracene-d10	1719-06-8	0.1	%	116	94.2	87.6	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	96.9	97.6	86.1	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	106	105	102	109
Toluene-D8	2037-26-5	0.1	%	108	108	107	105	106
4-Bromofluorobenzene	460-00-4	0.1	%	105	106	103	98.9	107





## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

				TSC	----	----	----	----
				26-MAR-2014 15:00	----	----	----	----
				ES1406908-006	----	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.6	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	19.6	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	1.7	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	9.3	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	3.6	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	12.9	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	34.8	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	114	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406908</b>	<b>Page</b>	: 1 of 14
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	<b>: GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 28-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 07-APR-2014
<b>Sampler</b>	: GAVIN POWELL	<b>No. of samples received</b>	: 6
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 6
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Pabi Subba

#### Position

Senior Spectroscopist  
Senior Organic Chemist

#### Accreditation Category

Sydney Inorganics  
Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 3367109)</b>									
ES1406770-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.2	11.3	0.9	0% - 50%
ES1406845-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.3	20.5	0.7	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3376631)</b>									
ES1406631-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	13	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	182	162	11.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	74	82	11.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	410	441	7.3	0% - 20%
ES1406911-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	10	15.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	16	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	58	43	30.3	0% - 50%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3376632)</b>									
ES1406631-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406911-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074C: Sulfonated Compounds (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3365824)</b>									
ES1406631-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3365824) - continued</b>											
ES1406631-001	Anonymous	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074G: Trihalomethanes (QC Lot: 3365824)</b>											
ES1406631-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP074H: Naphthalene (QC Lot: 3365824)</b>											
ES1406631-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3366417)</b>											
ES1406762-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
		ES1406762-014	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			1	mg/kg	<1	<1	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3366417)</b>											
ES1406762-001	Anonymous			EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3366417) - continued</b>									
ES1406762-001	Anonymous	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1406762-014	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3365823)</b>									
ES1406631-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1406908-002	D01_270314_GP	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366416)</b>									
ES1406762-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1406762-014	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3365823)</b>									
ES1406631-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1406908-002	D01_270314_GP	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366416)</b>									
ES1406762-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1406762-014	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3365823)</b>									
ES1406631-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406908-002	D01_270314_GP	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3376631)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.1	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	117	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	96.3	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	107	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	89.7	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3376632)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.4	70	105	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3365824)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	102	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	105	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	109	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	113	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	116	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	111	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	112	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	112	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	111	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3365824)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	101	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	91.7	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	84.7	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	84.3	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3365824)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	99.8	54	126	
<b>EP074D: Fumigants (QCLot: 3365824)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	128	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	100	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.3	54	124	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3365824) - continued</b>									
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	101	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	105	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3365824)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	62.3	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	81.2	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	94.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	90.1	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	116	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	108	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	93.0	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	89.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	97.2	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	108	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	106	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	111	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	110	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	116	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	113	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	116	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	98.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.6	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	103	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	96.5	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	92.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	90.0	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.1	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	114	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	89.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	131	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3365824)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	101	70	128	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3365824) - continued</b>									
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	106	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	113	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	114	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	102	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	114	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	114	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3365824)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	113	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	113	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	100	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	99.9	60	126	
<b>EP074H: Naphthalene (QCLot: 3365824)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	105	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	105	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	87.7	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	81.5	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	95.7	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	81.8	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	106	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	99.6	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.2	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	81.2	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	82.6	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	93.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.3	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	101	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	98.2	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	99.6	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	98.3	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	103	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	125	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3366417) - continued</b>								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	97.6	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	101	81	123
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	96.5	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	98.2	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	98.7	71	113
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	96.8	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	98.3	72.4	114
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3365823)</b>								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	68.4	128
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.1	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	115	64	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3365823)</b>								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	101	68.4	128
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	112	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	101	63	131
<b>EP080: BTEXN (QCLot: 3365823)</b>								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	107	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	97.4	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	94.3	58	118
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	98.4	60	120
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.1	62	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration	MS	Low High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3376631)</b>						



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3376631) - continued</b>							
ES1406631-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	83.6	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	129	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.0	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	97.0	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3376632)</b>							
ES1406631-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	104	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3365824)</b>							
ES1406631-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	125	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	99.2	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3365824)</b>							
ES1406631-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	102	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>							
ES1406762-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	59.4	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>							
ES1406762-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.7	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3365823)</b>							
ES1406631-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>							
ES1406762-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	95.5	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	84.5	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.7	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3365823)</b>							
ES1406631-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.7	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>							
ES1406762-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.1	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.8	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	52	132
<b>EP080: BTEXN (QCLot: 3365823)</b>							



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3365823) - continued</b>								
ES1406631-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	103	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	96.4	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.7	70	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	92.2	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3365823)</b>										
ES1406631-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3365823)</b>										
ES1406631-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.7	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3365823)</b>										
ES1406631-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	103	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	96.4	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.6	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.6	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.7	----	70	130	----	----
	EP080: Naphthalene	91-20-3	2.5 mg/kg	92.2	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3365824)</b>										
ES1406631-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	125	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	99.2	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3365824)</b>										
ES1406631-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	102	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366416)</b>										
ES1406762-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	95.5	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	84.5	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	87.7	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416)</b>										
ES1406762-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	97.1	----	73	137	----	----





Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366416) - continued</b>										
ES1406762-001	Anonymous	EP071: >C16 - C34 Fraction	----	4800 mg/kg	75.8	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	59.4	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366417)</b>										
ES1406762-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	100	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.2	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	59.4	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366417)</b>										
ES1406762-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.9	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	87.7	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3376631)</b>										
ES1406631-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	83.6	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	111	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	129	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	96.0	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	97.0	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3376632)</b>										
ES1406631-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	104	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406908</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 28-MAR-2014
C-O-C number	: ----	Issue Date	: 07-APR-2014
Sampler	: GAVIN POWELL	No. of samples received	: 6
Order number	: 0237747	No. of samples analysed	: 6
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA055: Moisture Content</b>								
Soil Glass Jar - Unpreserved (EA055-103) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	----	----	----	31-MAR-2014	10-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
Soil Glass Jar - Unpreserved (EG005T) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	04-APR-2014	23-SEP-2014	✓	07-APR-2014	23-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Soil Glass Jar - Unpreserved (EG035T) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	04-APR-2014	24-APR-2014	✓	07-APR-2014	24-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP071) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP074D: Fumigants</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074H: Naphthalene</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074B: Oxygenated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP074G: Trihalomethanes</b>								
Soil Glass Jar - Unpreserved (EP074) VK_SB02_3.9,	D01_270314_GP	27-MAR-2014	31-MAR-2014	03-APR-2014	✓	01-APR-2014	03-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP075(SIM)) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	01-APR-2014	10-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE 5, TSC	TRIP BLANK 1,	26-MAR-2014	31-MAR-2014	09-APR-2014	✓	01-APR-2014	09-APR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	31-MAR-2014	10-APR-2014	✓	01-APR-2014	10-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK 1		26-MAR-2014	31-MAR-2014	09-APR-2014	✓	01-APR-2014	09-APR-2014	✓
Soil Glass Jar - Unpreserved (EP080) VK_SB02_3.9, VG_MW02_3.5	D01_270314_GP,	27-MAR-2014	31-MAR-2014	10-APR-2014	✓	01-APR-2014	10-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	15	13.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### ***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes***

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### ***Regular Sample Surrogates***

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1406908</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: GAVIN POWELL</b>		

#### Dates

Date Samples Received	: 28-MAR-2014	Issue Date	: 29-MAR-2014 10:31
Client Requested Due Date	: 07-APR-2014	Scheduled Reporting Date	: <b>07-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.4°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 6
Security Seal	: Intact.	No. of samples analysed	: 6

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP074 (solids)	Volatile Organic Compounds	SOIL - EP080	BTEXN	SOIL - S-18 (NO MOIST)	TRH(C6-C9)/BTEXN with No Moisture	SOIL - S-27	TRH/BTEXN/PAH/Phenols/8Metals
ES1406908-001	27-MAR-2014 08:45	VK_SB02_3.9	✓							✓
ES1406908-002	27-MAR-2014 08:45	D01_270314_GP	✓							✓
ES1406908-003	27-MAR-2014 09:25	VG_MW02_3.5								✓
ES1406908-004	26-MAR-2014 15:00	TRIP SPIKE 5		✓						
ES1406908-005	26-MAR-2014 15:00	TRIP BLANK 1					✓			
ES1406908-006	26-MAR-2014 15:00	TSC		✓						

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CERTIFICATE OF ANALYSIS**

Work Order	: <b>ES1407203</b>	Page	: 1 of 16
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: G.P	No. of samples received	: 13
Site	: ----	No. of samples analysed	: 13
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 'Trace'** - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200Q:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- **EA200Q:** Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
 Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present).  
 Percentages for Asbestos content in ACM are based on the 2013 NEPM default values. All numerical results under this method are approximate and should be used as a guide only.
- **EP080:** The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- **EP231:** PFOA & PFOS results are reported as an aggregate of linear and branched isomers.



NATA Accredited Laboratory 825

Accredited for compliance with  
 ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
Compound	CAS Number	LOR	Unit	ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	163	281	329	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	12.0	15.0	10.7	16.0	8.9
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	No	No	----	No
Asbestos Type	1332-21-4	-	--	Ch + Am	-	-	----	-
Sample weight (dry)	----	0.01	g	604	509	625	----	809
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	----	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.604	0.509	0.625	----	0.809
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	----	<0.1
Fibrous Asbestos	----	0.002	g	0.018	<0.002	<0.002	----	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	----	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	0.004	<0.001	<0.001	----	<0.001
Trace Asbestos Detected	----	5	Fibres	No	No	No	----	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	2	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	31	26	13	11	12
Copper	7440-50-8	5	mg/kg	59	9	15	14	49
Lead	7439-92-1	5	mg/kg	113	9	14	10	12
Nickel	7440-02-0	2	mg/kg	13	4	10	6	16
Zinc	7440-66-6	5	mg/kg	541	55	120	130	189
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
Compound	CAS Number	LOR	Unit	ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	<5	<5
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
Compound	CAS Number	LOR	Unit	ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	<0.5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	----	----	----	<5	<5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
				ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	1.2	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	1.1	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.9	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.0	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	7.2	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	1.4	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.8	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
Compound	CAS Number	LOR	Unit	ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	120	270	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	130	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	250	270	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	190	300	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	140	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	330	300	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	----	----	----	----	0.0022
PFOA	335-67-1	0.0005	mg/kg	----	----	----	----	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	----	----	----	----	<0.005
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	104	102	100	99.2	94.0
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	99.8	85.6
Toluene-D8	2037-26-5	0.1	%	----	----	----	111	88.6
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	105	83.1



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VM_MW02_0.1	VM_MW05_0.1	VM_SB01_0.01	VE_MW01_0.1	VC_SB03_0.1
				31-MAR-2014 12:30	31-MAR-2014 12:50	31-MAR-2014 13:15	31-MAR-2014 13:30	31-MAR-2014 14:50
Compound	CAS Number	LOR	Unit	ES1407203-001	ES1407203-002	ES1407203-003	ES1407203-004	ES1407203-005
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	118	118	121	122	118
2-Chlorophenol-D4	93951-73-6	0.1	%	116	115	114	116	123
2.4.6-Tribromophenol	118-79-6	0.1	%	100	104	99.9	107	118
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	107	104	106	106	115
Anthracene-d10	1719-06-8	0.1	%	105	106	104	108	117
4-Terphenyl-d14	1718-51-0	0.1	%	115	118	117	121	130
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	97.3	102	96.3	91.4	78.4
Toluene-D8	2037-26-5	0.1	%	93.5	105	101	99.4	79.0
4-Bromofluorobenzene	460-00-4	0.1	%	87.6	99.7	96.1	99.6	74.3



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	----	----	----	118
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	2.5	3.6	7.2	8.7	15.2
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	----	No	No
Asbestos Type	1332-21-4	-	--	Ch	----	----	-	-
Sample weight (dry)	----	0.01	g	759	----	----	539	399
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	S.SPOONER	S.SPOONER
<b>EA200Q: Asbestos Quantification (non-NATA)</b>								
Weight Used for % Calculation	----	0.0001	kg	0.759	----	----	0.539	0.399
Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	<0.1	<0.1
Fibrous Asbestos	----	0.002	g	0.012	----	----	<0.002	<0.002
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	<0.01	----	----	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	0.005	----	----	<0.001	<0.001
Trace Asbestos Detected	----	5	Fibres	No	----	----	No	No
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	5	<2	6	34
Copper	7440-50-8	5	mg/kg	18	12	<5	<5	57
Lead	7439-92-1	5	mg/kg	8	14	<5	<5	67
Nickel	7440-02-0	2	mg/kg	7	4	<2	<2	13
Zinc	7440-66-6	5	mg/kg	152	198	40	40	708
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.9</b>
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<b>0.6</b>	<0.5	<b>2.7</b>
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>1.4</b>
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.9</b>
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.6</b>
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<b>0.6</b>
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<b>0.6</b>	<0.5	<b>7.1</b>
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<b>10</b>



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	970	1020	<100	<100	240
C29 - C36 Fraction	----	100	mg/kg	830	890	<100	<100	120
^ C10 - C36 Fraction (sum)	----	50	mg/kg	1800	1910	<50	<50	360
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	12
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	12
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	50
>C16 - C34 Fraction	----	100	mg/kg	1610	1700	<100	<100	300
>C34 - C40 Fraction	----	100	mg/kg	460	480	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	2070	2180	<50	<50	350
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.0005	mg/kg	<0.0005	----	----	----	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	96.9	93.7	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.5	85.8	----	----	----
Toluene-D8	2037-26-5	0.1	%	99.5	89.8	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	91.4	83.4	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VC_MW03_0.1	D01_310314_GP	VU_MW11_0.1	VL_SB01_0.1	VI_SB01_0.1
				31-MAR-2014 14:45	31-MAR-2014 14:45	31-MAR-2014 15:40	31-MAR-2014 16:00	31-MAR-2014 16:45
Compound	CAS Number	LOR	Unit	ES1407203-006	ES1407203-007	ES1407203-008	ES1407203-009	ES1407203-010
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	125	121	127	108	124
2-Chlorophenol-D4	93951-73-6	0.1	%	124	119	125	125	102
2,4,6-Tribromophenol	118-79-6	0.1	%	117	120	116	125	110
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	114	108	114	116	108
Anthracene-d10	1719-06-8	0.1	%	115	109	113	124	104
4-Terphenyl-d14	1718-51-0	0.1	%	124	124	126	123	124
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.4	78.6	104	107	97.4
Toluene-D8	2037-26-5	0.1	%	89.3	80.3	104	108	105
4-Bromofluorobenzene	460-00-4	0.1	%	83.1	75.7	100	106	98.1





## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

Client sampling date / time

				TS7	TB	TSC 7	---	---
				26-MAR-2014 15:00	26-MAR-2014 15:00	[02-APR-2014]	---	---
Compound	CAS Number	LOR	Unit	ES1407203-011	ES1407203-012	ES1407203-013	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>C6 - C9 Fraction</b>	---	10	mg/kg	<b>55</b>	<10	<b>71</b>	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>C6 - C10 Fraction</b>	C6_C10	10	mg/kg	<b>61</b>	<10	<b>77</b>	---	---
<b>C6 - C10 Fraction minus BTEX (F1)</b>	C6_C10-BTEX	10	mg/kg	<b>30</b>	<10	<b>42</b>	---	---
<b>EP080: BTEXN</b>								
<b>Benzene</b>	71-43-2	0.2	mg/kg	<b>0.5</b>	<0.2	<b>0.5</b>	---	---
<b>Toluene</b>	108-88-3	0.5	mg/kg	<b>17.6</b>	<0.5	<b>20.5</b>	---	---
<b>Ethylbenzene</b>	100-41-4	0.5	mg/kg	<b>1.6</b>	<0.5	<b>1.8</b>	---	---
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	0.5	mg/kg	<b>8.3</b>	<0.5	<b>8.7</b>	---	---
<b>ortho-Xylene</b>	95-47-6	0.5	mg/kg	<b>3.4</b>	<0.5	<b>3.5</b>	---	---
<b>Sum of BTEX</b>	---	0.2	mg/kg	<b>31.4</b>	<0.2	<b>35.0</b>	---	---
<b>Total Xylenes</b>	1330-20-7	0.5	mg/kg	<b>11.7</b>	<0.5	<b>12.2</b>	---	---
<b>Naphthalene</b>	91-20-3	1	mg/kg	<1	<1	<1	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>97.4</b>	<b>112</b>	<b>101</b>	---	---
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>102</b>	<b>117</b>	<b>110</b>	---	---
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>100</b>	<b>110</b>	<b>105</b>	---	---

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>		
EA200: Description	VM_MW02_0.1 - 31-MAR-2014 12:30	Mid brown clay soil with grey and orange rocks plus one piece of friable asbestos cement sheeting approximately 5 x 4 x 2mm plus several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5mm.
EA200: Description	VM_MW05_0.1 - 31-MAR-2014 12:50	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VM_SB01_0.01 - 31-MAR-2014 13:15	Mid grey-brown clay soil with grey and red rocks plus a trace of vegetation.
EA200: Description	VC_SB03_0.1 - 31-MAR-2014 14:50	Mid grey clay soil with grey rocks plus a trace of vegetation.
EA200: Description	VC_MW03_0.1 - 31-MAR-2014 14:45	Mid brown sandy soil with grey rocks plus plenty of vegetation plus one piece of friable asbestos cement sheeting approximately 8 x 7 x 2mm.
EA200: Description	VL_SB01_0.1 - 31-MAR-2014 16:00	Mid brown clay soil with grey and orange rocks plus a trace of vegetation.
EA200: Description	VI_SB01_0.1 - 31-MAR-2014 16:45	Dark brown clay soil with dark grey and orange rocks plus a trace of vegetation.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

## QUALITY CONTROL REPORT

Work Order	: <b>ES1407203</b>	Page	: 1 of 19
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: G.P	No. of samples received	: 13
Order number	: 0237747	No. of samples analysed	: 13
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3378684)</b>									
ES1407203-001	VM_MW02_0.1	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	163	163	0.0	0% - 20%
ES1407325-007	Anonymous	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	429	368	15.3	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3373400)</b>									
ES1406953-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	26.0	25.8	0.9	0% - 20%
ES1407028-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	40.3	36.8	9.0	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3373401)</b>									
ES1407203-006	VC_MW03_0.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	2.5	2.0	19.4	No Limit
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3378780)</b>									
ES1407111-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	22	13.1	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	12	12	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	14	7.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	49	47	4.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	28	27	5.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	50	3.6	0% - 50%
ES1407203-001	VM_MW02_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	2	2	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	37	18.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	13	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	59	61	3.1	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	113	111	2.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	541	522	3.4	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3378781)</b>									
ES1407111-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1407203-001	VM_MW02_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3372592)</b>									
ES1407112-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1407169-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3373154) - continued</b>									
ES1407197-001	Anonymous	EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3373154) - continued</b>									
ES1407197-001	Anonymous	EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3373154) - continued</b>									
ES1407203-004	VE_MW01_0.1	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3373154)</b>									
ES1407197-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3373154)</b>									





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074H: Naphthalene (QC Lot: 3373154) - continued</b>									
ES1407197-001	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3372668)</b>									
ES1407169-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
ES1407203-006	VC_MW03_0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3372668)</b>									
ES1407169-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3372668) - continued</b>									
ES1407169-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1407203-006	VC_MW03_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3372667)</b>									
ES1407169-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	640	780	18.7	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	360	410	13.1	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1407203-006	VC_MW03_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	970	1220	22.7	0% - 50%
		EP071: C29 - C36 Fraction	----	100	mg/kg	830	1030	21.6	0% - 50%
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3372676)</b>									
ES1407169-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1407203-001	VM_MW02_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3373153)</b>									
ES1407197-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3372667)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3372667) - continued</b>									
ES1407169-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	930	1080	15.6	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	180	210	15.4	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1407203-006	VC_MW03_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	1610	1970	20.4	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	460	550	19.2	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3372676)</b>									
ES1407169-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1407203-001	VM_MW02_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3373153)</b>									
ES1407197-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3372676)</b>									
ES1407169-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1407203-001	VM_MW02_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3373153)</b>									
ES1407197-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1407203-004	VE_MW01_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	0.7	36.4	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Page : 10 of 19  
 Work Order : ES1407203  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3373153) - continued</b>									
ES1407203-004	VE_MW01_0.1	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3372517)</b>									
ES1406923-001	Anonymous	EP231: PFOS	1763-23-1	0.0005	mg/kg	2.76	2.53	8.8	0% - 20%
		EP231: PFOA	335-67-1	0.0005	mg/kg	0.0298	0.0248	18.2	0% - 20%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
					Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)
Method: Compound	CAS Number	LOR	Unit					LCS	Low
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3378684)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	101	96	104	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3378780)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	119	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	111	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	118	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	125	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	113	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	116	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378781)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	91.6	70	105	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3372592)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	106	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3373154)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	107	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	112	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	108	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	110	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	110	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	109	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	108	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3373154)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	94.1	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	106	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	104	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	101	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3373154)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	71.3	54	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074D: Fumigants (QCLot: 3373154)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	107	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	101	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	99.7	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	103	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	102	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3373154)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	54.7	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	68.9	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	74.8	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	91.0	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	92.4	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	96.5	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	94.3	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	87.5	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	106	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	102	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	104	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	108	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	104	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	104	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	104	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	103	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	136	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	105	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	83.6	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	109	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	103	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	69.7	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	115	53	129	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3373154) - continued</b>									
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	111	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3373154)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	111	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	104	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	108	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	104	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	106	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	107	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	104	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	110	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	110	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3373154)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	106	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	93.7	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	108	60	126	
<b>EP074H: Naphthalene (QCLot: 3373154)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	99.4	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372668)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	103	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	90.6	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	95.2	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	95.6	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	88.3	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	101	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	95.7	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	93.4	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	101	76.4	114	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	84.9	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	85.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	30.3	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372668)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	110	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	103	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	104	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	109	79	123	





Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372668) - continued</b>									
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	108	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	105	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	104	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	113	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	110	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	106	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	110	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	106	76	122	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	104	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	103	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	105	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372667)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	94.9	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	96.0	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.9	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372676)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373153)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.1	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372667)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	94.8	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	96.1	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	84.4	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372676)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.7	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373153)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.6	68.4	128	
<b>EP080: BTEXN (QCLot: 3372676)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.2	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.4	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	101	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	110	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	62	138	
<b>EP080: BTEXN (QCLot: 3373153)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.2	62	116	





Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080: BTEXN (QCLot: 3373153) - continued</b>								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.8	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.5	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.7	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.9	62	138
<b>EP231: Perfluorinated Compounds (QCLot: 3372517)</b>								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	86.9	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	71.3	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	98.9	56	138

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3378780)</b>							
ES1407111-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	112	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	112	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	108	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378781)</b>							
ES1407111-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	103	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3372592)</b>							
ES1407112-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	126	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3373154)</b>							
ES1407197-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.0	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3373154)</b>							
ES1407197-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.6	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372668)</b>							
ES1407169-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372668) - continued</b>							
ES1407169-001	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	94.9	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	74.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372668)</b>							
ES1407169-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.0	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372667)</b>							
ES1407169-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.7	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.0	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372676)</b>							
ES1407169-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	125	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373153)</b>							
ES1407197-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.8	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372667)</b>							
ES1407169-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	85.4	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.9	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372676)</b>							
ES1407169-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	118	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373153)</b>							
ES1407197-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	70	130
<b>EP080: BTEXN (QCLot: 3372676)</b>							
ES1407169-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	99.2	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	105	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	105	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.5	70	130
<b>EP080: BTEXN (QCLot: 3373153)</b>							
ES1407197-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	72.9	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.8	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080: BTEXN (QCLot: 3373153) - continued</b>								
ES1407197-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	73.6	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.0	70	130	
<b>EP231: Perfluorinated Compounds (QCLot: 3372517)</b>								
ES1406923-001	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	54	146	
		EP231: PFOA	335-67-1	0.0025 mg/kg	# Not Determined	54	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	86.0	56	138	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3372517)</b>										
ES1406923-001	Anonymous	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	# Not Determined	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	86.0	----	56	138	----	----
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3372592)</b>										
ES1407112-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	126	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372667)</b>										
ES1407169-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	79.7	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	3140 mg/kg	104	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	2860 mg/kg	78.0	----	52	132	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372667)</b>										
ES1407169-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	85.4	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.9	----	52	132	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372668)</b>										
ES1407169-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	107	----	70	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.0	----	70	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.2	----	60	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372668) - continued</b>										
ES1407169-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	94.9	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	74.1	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372668)</b>										
ES1407169-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372676)</b>										
ES1407169-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	125	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372676)</b>										
ES1407169-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	118	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3372676)</b>										
ES1407169-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	99.2	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	105	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	105	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.5	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373153)</b>										
ES1407197-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.8	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373153)</b>										
ES1407197-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.8	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3373153)</b>										
ES1407197-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.0	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	72.9	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.8	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.8	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	73.6	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.0	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3373154)</b>										
ES1407197-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	73.0	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3373154)</b>										
ES1407197-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.6	----	70	130	----	----
<b>EG005T: Total Metals by ICP-AES (QCLot: 3378780)</b>										
ES1407111-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	108	----	70	130	----	----



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3378780) - continued</b>										
ES1407111-005	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	103	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	112	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	112	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	108	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378781)</b>										
ES1407111-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	103	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407203</b>	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: G.P	No. of samples received	: 13
Order number	: 0237747	No. of samples analysed	: 13
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA032: Electrical Conductivity (saturated paste)</b>								
<b>Soil Glass Jar - Unpreserved (EA032)</b> VM_MW02_0.1, VM_SB01_0.01,	VM_MW05_0.1, VI_SB01_0.1	31-MAR-2014	----	----	----	07-APR-2014	27-SEP-2014	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved (EA055-103)</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1,	VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	----	----	----	03-APR-2014	14-APR-2014	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>								
<b>Snap Lock Bag (EA200)</b> VM_MW02_0.1, VM_SB01_0.01, VC_MW03_0.1, VI_SB01_0.1	VM_MW05_0.1, VC_SB03_0.1, VL_SB01_0.1	31-MAR-2014	---	27-SEP-2014	----	09-APR-2014	06-OCT-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1,	VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	07-APR-2014	27-SEP-2014	✓	08-APR-2014	27-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1,	VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	07-APR-2014	28-APR-2014	✓	08-APR-2014	28-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Soil Glass Jar - Unpreserved (EP066)</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	05-APR-2014	13-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP071)</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1 VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	04-APR-2014	13-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074H: Naphthalene</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1 VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓





Matrix: **SOIL** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Soil Glass Jar - Unpreserved (EP074)</b> VE_MW01_0.1, VC_MW03_0.1,	VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	07-APR-2014	✓	06-APR-2014	07-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1,	VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	04-APR-2014	13-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b> VM_MW02_0.1, VM_SB01_0.01, VC_SB03_0.1, D01_310314_GP, VL_SB01_0.1,	VM_MW05_0.1, VE_MW01_0.1, VC_MW03_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	04-APR-2014	13-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> TSC 7		02-APR-2014	03-APR-2014	16-APR-2014	✓	04-APR-2014	16-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TS7,	TB	26-MAR-2014	03-APR-2014	09-APR-2014	✓	04-APR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VM_MW02_0.1, VM_SB01_0.01, VL_SB01_0.1,	VM_MW05_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	04-APR-2014	14-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_MW01_0.1, VC_MW03_0.1,	VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	14-APR-2014	✓	06-APR-2014	14-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b> TSC 7		02-APR-2014	03-APR-2014	16-APR-2014	✓	04-APR-2014	16-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> TS7,	TB	26-MAR-2014	03-APR-2014	09-APR-2014	✓	04-APR-2014	09-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VM_MW02_0.1, VM_SB01_0.01, VL_SB01_0.1,	VM_MW05_0.1, VU_MW11_0.1, VI_SB01_0.1	31-MAR-2014	03-APR-2014	14-APR-2014	✓	04-APR-2014	14-APR-2014	✓
<b>Soil Glass Jar - Unpreserved (EP080)</b> VE_MW01_0.1, VC_MW03_0.1,	VC_SB03_0.1, D01_310314_GP	31-MAR-2014	03-APR-2014	14-APR-2014	✓	06-APR-2014	14-APR-2014	✓

Page : 5 of 11  
 Work Order : ES1407203  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP231: Perfluorinated Compounds</b>							
<b>Soil Glass Jar - Unpreserved (EP231)</b> VC_SB03_0.1, VC_MW03_0.1	31-MAR-2014	03-APR-2014	27-SEP-2014	✓	03-APR-2014	13-MAY-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	3	25	12.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	15	13.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	13	15.4	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	23	8.7	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	23	4.3	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	23	4.3	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	23	4.3	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Asbestos Materials Content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Page : 9 of 11  
Work Order : ES1407203  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP231: Perfluorinated Compounds	ES1406923-001	Anonymous	PFOS	1763-23-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231: Perfluorinated Compounds	ES1406923-001	Anonymous	PFOA	335-67-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-006	VC_MW03_0.1	Phenol-d6	13127-88-3	125 %	63-123 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-008	VU_MW11_0.1	Phenol-d6	13127-88-3	127 %	63-123 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-010	VI_SB01_0.1	Phenol-d6	13127-88-3	124 %	63-123 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-006	VC_MW03_0.1	2-Chlorophenol-D4	93951-73-6	124 %	66-122 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-008	VU_MW11_0.1	2-Chlorophenol-D4	93951-73-6	125 %	66-122 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-005	VC_SB03_0.1	2-Chlorophenol-D4	93951-73-6	123 %	66-122 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1407203-009	VL_SB01_0.1	2-Chlorophenol-D4	93951-73-6	125 %	66-122 %	Recovery greater than upper data quality objective
EP075(SIM)T: PAH Surrogates	ES1407203-005	VC_SB03_0.1	4-Terphenyl-d14	1718-51-0	130 %	65-129 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.



- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
Total Metals by ICP-AES	2	23	8.7	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>					
Total Metals by ICP-AES	1	23	4.3	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>					
Total Metals by ICP-AES	1	23	4.3	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
Total Metals by ICP-AES	1	23	4.3	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1407203</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : G.P	<b>Page</b> : 1 of 3  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 02-APR-2014 <b>Client Requested Due Date</b> : 09-APR-2014	<b>Issue Date</b> : 02-APR-2014 20:46 <b>Scheduled Reporting Date</b> : <b>09-APR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 3 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 3.4°C - Ice present <b>No. of samples received</b> : 13 <b>No. of samples analysed</b> : 13
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample TS7 and TB received extra and conducted TPH C6-C9/BTEX analysis, Please confirm**
- **Sample T01\_310314 send to Envirolab**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - EA200N Asbestos Quantitation by WA/NEPM Guidelines -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1407203-001	31-MAR-2014 12:30	VM_MW02_0.1	✓	✓	✓				✓
ES1407203-002	31-MAR-2014 12:50	VM_MW05_0.1	✓	✓	✓				✓
ES1407203-003	31-MAR-2014 13:15	VM_SB01_0.01	✓	✓	✓				✓
ES1407203-004	31-MAR-2014 13:30	VE_MW01_0.1			✓	✓			✓
ES1407203-005	31-MAR-2014 14:50	VC_SB03_0.1		✓	✓	✓	✓		✓
ES1407203-006	31-MAR-2014 14:45	VC_MW03_0.1		✓	✓	✓	✓		✓
ES1407203-007	31-MAR-2014 14:45	D01_310314_GP			✓	✓			✓
ES1407203-008	31-MAR-2014 15:40	VU_MW11_0.1							✓
ES1407203-009	31-MAR-2014 16:00	VL_SB01_0.1		✓					✓
ES1407203-010	31-MAR-2014 16:45	VI_SB01_0.1	✓	✓					✓
ES1407203-011	26-MAR-2014 15:00	TS7					✓		
ES1407203-012	26-MAR-2014 15:00	TB					✓		
ES1407203-013	[ 02-APR-2014 ]	TSC 7					✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

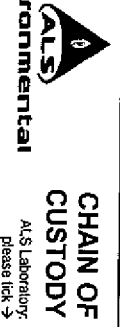
- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC)	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT	Email	symphony.deltanorth@erm.com
- EDI Format - XTab	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

DADE A002 21 Burna Road, Rosalie SA 5095  
Ph: 08 8399 0090 E: dade@alsglobal.com  
DARSBANK 32 Strand Street, Stirling QLD 4203  
Ph: 07 3242 7222 E: sarah@alsglobal.com  
DGLADSTONE 46 Collier Street, Gladstone QLD 4680  
Ph: 07 4711 5800 E: gplad@alsglobal.com

DALCAY 73 Vantage Road, Mackay QLD 4740  
Ph: 07 4944 0171 E: mackay@alsglobal.com  
DMEIDOURNE 2-4 Westall Road, Springvale VIC 3171  
Ph: 03 8549 8900 E: sarah@alsglobal.com  
DMLADCE 27 Sydney Road, Mulgrave NSW 2180  
Ph: 02 6372 6755 E: mulgrave@alsglobal.com

DNEWCASTLE 5 Rose Gum Road, Warbrook NSW 2304  
Ph: 02 4960 8439 E: warbrook@alsglobal.com  
DNOOWA 413 Camp Road, North Omeo NSW 2341  
Ph: 02 4242 2062 E: noma@alsglobal.com  
DPERTH 10 Hindley Street, Perth WA 6000  
Ph: 08 9209 7655 E: perth@alsglobal.com

DSYDNEY 277288 Woodpark Road, Smithfield NSW 2164  
Ph: 02 8784 8555 E: sydney@alsglobal.com  
DTRAVINSULL 14-18 Orlina Court, Sullivans Creek QLD 4818  
Ph: 07 4755 0600 E: travinsull@alsglobal.com  
DWAOLONGONG 99 Kangaroo Street, Wollongong NSW 2500  
Ph: 02 4225 9725 E: wollongong@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALER'S POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** *RYAN RALPH G.P*  
**COC emailed to ALS?** (YES / NO)  
**Email Reports to:** (will default to PM if no other addresses are listed): symphony.dellanordh@erm.com  
**Email Invoice to:** (will default to PM if no other addresses are listed): symphony.dellanordh@erm.com  
**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**TURNAROUND REQUIREMENTS:**  
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALC QUOTE NO.:**  
**GOC SEQUENCE NUMBER (Grid):**  
COC: 1 2 3 4 5 6 7  
DR: 1 2 3 4 5 6 7  
**RECEIVED BY:** *Steven*  
**DATE/TIME:** 2/11/14 9:30  
**RELINQUISHED BY:**  
**DATE/TIME:**

**FOR LABORATORY USE ONLY (Grid)**  
COC:  YES  NO  
Grid:  YES  NO  
Random Sampler Temperature on Receipt:  YES  NO  
Other Comments:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed in attached suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).											Additional Information
						8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	
1	VM_MW02_0-1	31/3/14 1230	S	Ice jar, B	2	X	X	X	X	X	X	X	X	X	X	X	
2	VM_MW05_0-1	1250	S	"	2	X	X	X	X	X	X	X	X	X	X	X	
3	VM_SBO1_0-01	1305	S	"	2	X	X	X	X	X	X	X	X	X	X	X	
4	VE_MW01_0-1	1330	S	Ice jar	1	X	X	X	X	X	X	X	X	X	X	X	
5	VC_SBO3_0-1	1450	S	Ice jar (no filter), B	3	X	X	X	X	X	X	X	X	X	X	X	
6	VC_MW08_0-1	1445	S	"	3	X	X	X	X	X	X	X	X	X	X	X	
7	DOL310314_00	1445	S	Ice jar	1	X	X	X	X	X	X	X	X	X	X	X	
8	VU_MW11_0-1	1540	S	"	1	X	X	X	X	X	X	X	X	X	X	X	
9	VE_SBO1_0-1	1600	S	Ice jar, B	2	X	X	X	X	X	X	X	X	X	X	X	
10	VE_SBO1_0-1	1600	S	Ice jar	1	X	X	X	X	X	X	X	X	X	X	X	
					2	X	X	X	X	X	X	X	X	X	X	X	
					<b>TOTAL</b>												

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speculation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass.  
Z = Zinc Asbestos Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Substrate Solids; B = Unpreserved Bag.

Environmental Division  
Sydney  
Work Order  
**ES1407203**  
Telephone: +61-2-8784 8555

To EnviroLab please



**CHAIN OF CUSTODY**  
 ALS Laboratory  
 Please tick →

DADLAIDE 21 Burns Road Poonah SA 5095  
 Ph: 08 8558 0490 E: adelaide@alsglobal.com  
 DORISBANE 92 Shing Street Stirling QLD 4053  
 Ph: 07 3243 7222 E: samirah.burman@alsglobal.com  
 DGLAISTONE 46 Callaghan Drive Clifton QLD 4660  
 Ph: 07 4741 5900 E: gideon@alsglobal.com

DMAKAY 78 Harbour Road Kinross QLD 4740  
 Ph: 07 4944 0177 E: macey@alsglobal.com  
 DNELOCKRIVE 2-4 Venn Road Spennang VIC 3177  
 Ph: 03 9549 8900 E: samirah.burman@alsglobal.com  
 DMLUGOE 27 Sydney Road Manjapa NSW 2895  
 Ph: 02 8372 8738 E: mudgee@alsglobal.com

DNEWCASTLE 5 Raza Gun Road Warburton NSW 2304  
 Ph: 02 4568 8433 E: samirah.burman@alsglobal.com  
 DNOONGA 413 Oakley Place North Nowa NSW 2541  
 Ph: 02 4242 2089 E: nowa@alsglobal.com  
 DPERTH 14044 Wood Way Manjapa WA 6100  
 Ph: 08 9203 7555 E: samirah.burman@alsglobal.com

DSYDNEY 277-283 Woodpark Road Smithfield NSW 2164  
 Ph: 02 8704 5555 E: samirah.burman@alsglobal.com  
 LITONNSVILLE 14-15 Deane Court Bontho QLD 4815  
 Ph: 07 4796 0600 E: lonesville@alsglobal.com  
 DMVOULONONG 90 Kaitia Street Wodonga NSW 2520  
 Ph: 02 4228 3128 E: postdamirah@alsglobal.com

CLIENT: ERM  
 OFFICE: PYRMONT  
 PROJECT: VALES POINT POWER STATION  
 ORDER NUMBER: 02337747  
 PROJECT MANAGER: JOHN EWING  
 CONTACT PH: 0401 1766 290

SAMPLER: **MYLES MACKENZIE G.P** SAMPLER MOBILE:  
 COC emailed to ALST 1 YES / NO EDD FORMAT (for default):  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com  
 Email invoices to (will default to PM if no other addresses are listed): symphony.delanorth@erm.com

TURNAROUND REQUIREMENTS:  
 Standard TAT (Last due date)  
 Non Standard or Urgent TAT (Last due date)

RECEIVED BY: **Steve** DATE/TIME: **2/14/14 9:30**  
 RELINQUISHED BY: DATE/TIME:

RECEIVED BY: **Robson / Forward Lab / Split WO** DATE/TIME: **14/02/14**  
 RELINQUISHED BY: **Organised By / Date: 14/02/14**

FOR LABORATORY USE ONLY (Circle)  
 YES NO N/A  
 Free Ice / Frozen Ice / Labels present (up to 2000) YES NO N/A  
 Random Sampling (emitting on Receipt) YES NO N/A  
 Other comment:

Control / Counter: **Forward sample 101-1203**  
 Attach By PD / Interim Sheet to EnviroLab  
 Additional Information: **101-1203**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH / PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions or samples requiring specific OC analysis etc.
1	VM_MW02_0.1	21/3/14 1230	s	1x jar, B	2	X	X	X	X	X	X	X	X	X	X	X		
2	VM_MW05_0.1	1250	s	"	2	X	X	X	X	X	X	X	X	X	X	X		
3	VM_S801_0.01	135	s	"	2	X	X	X	X	X	X	X	X	X	X	X		
4	VE_MW01_0.1	1330	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X		
5	VC_S803_0.1	1450	s	2x jar (no filter), B	3	X	X	X	X	X	X	X	X	X	X	X		
6	VC_MW03_0.1	1445	s	"	3	X	X	X	X	X	X	X	X	X	X	X		
7	D01_310314_0R	1445	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X		
8	VM_MW11_0.1	1540	s	"	1	X	X	X	X	X	X	X	X	X	X	X		
9	VL_S801_0.1	1600	s	1x jar, B	2	X	X	X	X	X	X	X	X	X	X	X		
10	T01_310314_0R	1600	s	1x jar	1	X	X	X	X	X	X	X	X	X	X	X		
10	VE_S801_0.01	1845	s	1x jar, B	2	X	X	X	X	X	X	X	X	X	X	X		
11	TS7-26/3		s															
<b>TOTAL</b>																		

Water Container Codes: P = Unpreserved Plastic; N = Nitrile Preserved Plastic; CRG = Nitrile Preserved CRG; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
 V = VOA Via HCl Preserved; VB = VOA Via Sodium Bisphosphate Preserved; VS = VOA Via Sulfuric Preserved; AV = Airflight Unpreserved Via SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Z = Airline Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfuric Solids; B = Unpreserved Bag  
 (11) - 12 extra field

Environmental Division  
 Work Order  
**ES1407203**  
 Telephone: +61-2-8784 8555

To EnviroLab please





# CHAIN OF CUSTODY

ALS Laboratory  
please tick →

ENT: ERM

OFFICE: PYRMONT

SUBJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

E MANAGER: JOHN EWING

ANALYST: R. Pascoe

CONTACT PH: 0401 776 290

SAMPLER MOBILE: 0401 591 470

RELINQUISHED BY: Sam E

DATE/TIME: 28/2/14

EDD FORMAT (or default): symphony.deltacoast@erm.com

all Reports to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

all invoice to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:

Standard TAT (List due date): SY-050-14

Non Standard or urgent TAT (List due date):

ALS QUOTE NO.:

COC SEQUENCE NUMBER (Circle):

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY: Sophia ALS

DATE/TIME: 28/2/14 17:20

RELINQUISHED BY:

DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?  Yes  No

Free ice / frozen ice bricks present upon receipt?  Yes  No

Random Sample Temperature on Receipt: 9.8 °C

Other comment:

RECEIVED BY: Kevin

DATE/TIME: 3/3/14 13:10

ALS JSE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information			
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/PFOA	pH/CEC	PSD sieve / TOC Leco		EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals
①	TOI-270214-RP	27.2.14	S	S	1	X	X	X										Comments on likely contaminant levels, dilutions, or samples requiring specific CC analysis etc.
			S	S														
			S	S														
			S	S														
			S	S														
			S	S														
			S	S														
			S	S														
			S	S														

**ENVIROLAB**  
EnviroLab Services  
17 Ashley St  
Chalwood NSW 2067  
Ph: (02) 9970 6200

Job No: 105922

Date Received: 3/3/14  
Time Received: 13:10

Received by: [Signature]  
Temp: Cool/Ambient  
Cooling: Ice/icepack  
Security: Intact/Broken/None

or Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

# CHAIN OF CUSTODY

ALS Laboratory  
Please tick →

ENT: ERM  
 FICE: PYRMONT  
 SUBJECT: VALES POINT POWER STATION  
 DER NUMBER: 0237747  
 E MANAGER: JOHN EWING  
 VPLER: CHRIS MASTERS  
 C emailed to ALS? ( YES / NO )  
 all Reports to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com  
 all Invoice to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
 SY-050-14

FOR LABORATORY USE ONLY (Circle)  
 Custody Seal Intact? (Yes/No)  
 Free ice / frozen ice bricks present upon receipt? (Yes/No)  
 Random Sample Temperature on Receipt: 9.8 °C  
 Other comment:

RECEIVED BY: [Signature]  
 DATE/TIME: 28/2/14

RELINQUISHED BY: [Signature]  
 DATE/TIME: 28/2/14

ALS JSE	SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information					
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(ref/ to)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3)	TPH/BTEX/PAH/ PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC		PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	
35	VU-MW20-2.0	27/2/14	S	Jar bag		2														
36	VU-MW20-3.0	↓	S	Jar		2														
37	VU-MW20-4.0		S	Jar		2														
38	VU-MW20-5.0		S	Jar		2														
39	VU-MW20-7.0		S	Jar		2														
40	VU-MW20-9.0		S	Jar		2	X													
41	VO-MW11-2.0		S	2 jars, 1 bag		3														
42	VO-MW11-3.0		S	Jar		2														
43	VO-MW11-4.0		S	Jar		2														
44	VO-MW11-5.0		S	Jar		2														
45	VO-MW11-6.0		S	Jar		2														

er Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.





**CERTIFICATE OF ANALYSIS**

**105922**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	03/03/14 / 03/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 10/03/14 / 7/03/14  
Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

VOCs in soil Our Reference: Your Reference	UNITS -----	105922-1 T01_270214_ RP
Date Sampled Type of sample	-----	27/02/2014 soil
Date extracted	-	04/03/2014
Date analysed	-	07/03/2014
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1

VOCs in soil Our Reference: Your Reference	UNITS -----	105922-1 T01_270214_ RP
Date Sampled Type of sample	-----	27/02/2014 soil
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	88
Surrogate aaa-Trifluorotoluene	%	80
Surrogate Toluene-d8	%	118
Surrogate 4-Bromofluorobenzene	%	95

vTRH(C6-C10)/BTEXn in Soil		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_
		RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date extracted	-	04/03/2014
Date analysed	-	07/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	80

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_
		RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date extracted	-	04/03/2014
Date analysed	-	04/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	92

PAHs in Soil		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_ RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date extracted	-	4/03/2014
Date analysed	-	5/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	103

Total Phenolics in Soil		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_ RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date extracted	-	05/03/2014
Date analysed	-	05/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_
		RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date digested	-	04/03/2014
Date analysed	-	04/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	3
Copper	mg/kg	10
Lead	mg/kg	8
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	14



Moisture		
Our Reference:	UNITS	105922-1
Your Reference	-----	T01_270214_
		RP
Date Sampled	-----	27/02/2014
Type of sample		soil
Date prepared	-	4/03/2014
Date analysed	-	5/03/2014
Moisture	%	19

MethodID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
Date extracted	-			04/03/2014	[NT]	[NT]	LCS-5	04/03/2014
Date analysed	-			07/03/2014	[NT]	[NT]	LCS-5	07/03/2014
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	81%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	81%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	84%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	83%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	80%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	79%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	101%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-5	123%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	83	[NT]	[NT]	LCS-5	91%
Surrogate aaa-Trifluorotoluene	%		Org-014	91	[NT]	[NT]	LCS-5	83%
Surrogate Toluene-d8	%		Org-014	120	[NT]	[NT]	LCS-5	119%
Surrogate 4-Bromofluorobenzene	%		Org-014	96	[NT]	[NT]	LCS-5	96%

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/03/2014	[NT]	[NT]	LCS-5	04/03/2014
Date analysed	-			07/03/2014	[NT]	[NT]	LCS-5	07/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	108%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	108%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	95%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	93%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	117%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	118%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	138%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	91	[NT]	[NT]	LCS-5	85%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/03/2014	[NT]	[NT]	LCS-3	04/03/2014
Date analysed	-			04/03/2014	[NT]	[NT]	LCS-3	04/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	91%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	107%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	92%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	91%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	107%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	92%
Surrogate o-Terphenyl	%		Org-003	96	[NT]	[NT]	LCS-3	99%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/03/2014	[NT]	[NT]	LCS-2	04/03/2014
Date analysed	-			05/03/2014	[NT]	[NT]	LCS-2	05/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	99%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	102%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	99%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	98%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	102%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	95%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-2	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	104	[NT]	[NT]	LCS-2	101%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			05/03/2014	[NT]	[NT]	LCS-1	05/03/2014
Date analysed	-			05/03/2014	[NT]	[NT]	LCS-1	05/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	82%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			04/03/2014	[NT]	[NT]	LCS-7	04/03/2014
Date analysed	-			04/03/2014	[NT]	[NT]	LCS-7	04/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-7	98%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-7	109%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-7	84%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	102%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.





**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**105922**

Date received:

**03/03/14**

Date results expected to be reported:

**10/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	10.1
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

LADELAIDE 21 Burma Road Prooraka SA 5095  
Ph: 08 8359 0890 E: adeelaide@alsglobal.com  
BRISBANE 32 Shand Street Stirlong QLD 4053  
Ph: 07 3243 7222 E: samples.br@alsglobal.com  
GLADSTONE 46 Calliondara Drive Clifton QLD 4680  
Ph: 07 7471 5600 E: gladstone@alsglobal.com

MACKEY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com  
MELBOURNE 2-4 Wedal Road Springvale VIC 3171  
Ph: 03 8549 9800 E: samples.mel@alsglobal.com  
MIDGEE 27 Sydney Road Mudgee NSW 2850  
Ph: 02 6372 6735 E: mudgee@alsglobal.com

NEWCASTLE E Rose Gum Road Warabrook NSW 2304  
Ph: 02 4668 8430 E: samples.newcastle@alsglobal.com  
NOVRA 4-13 Geary Place North Novra NSW 2541  
Ph: 02 4423 2063 E: novra@alsglobal.com  
PERTH 10 Hood Way Malaga WA 6006  
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8552 E: samples.sydney@alsglobal.com  
TOWNSVILLE 14-15 Deana Court Doole QLD 4818  
Ph: 07 4796 0600 E: townsville.environment@alsglobal.com  
WOLLONGONG 99 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkembla@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** P. Pascoe  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:**  
**EDD FORMAT (or default):**  
Email Reports to (will default to PM if no other addresses are listed): symphony.della.coasi@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.della.coas@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
Ultra Trace Organics SY-050-14  
**ALS QUOTE NO.:**

**FOR LABORATORY USE ONLY (Circle)**  
Custody Seal Intact? Yes No  
Free ice / frozen ice bricks present upon receipt? Yes No  
Random Sample Temperature on Receipt: °C  
Other comment:

**RECEIVED BY:** ghu DATE/TIME: 5/3/14 13:30  
**RELINQUISHED BY:** ce DATE/TIME: 4/3/14 17:00  
**RECEIVED BY:** Taylor W DATE/TIME: 4/3/14 16:15  
**RELINQUISHED BY:** DBrookes DATE/TIME: 4/3/14

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED including SUITES (NB Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
	TOL_030314-RP	3/3/14	S	1 jar	1	13 METALS (S-3) 8 METALS (S-2) PHENOLS (S-24) VOC PCB PFOS/PFOA pH/CEC PSD sieve / TOC EC Saturated Paste Ultra Trace PAH Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.  Send to EnviroLab  EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200 Job No: 106077  Date Received: 5/3/14 Time Received: 13:30 Received by: JYH Temp: Cool/Ambient Cooling: Ice/Icepack Seal: Intact/Broken/None
<b>TOTAL</b>							

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solis; B = Unpreserved Bag.

ES140580

**CERTIFICATE OF ANALYSIS**

**106077**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	05/03/14 / 05/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 12/03/14 / 11/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_
		RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date extracted	-	06/03/2014
Date analysed	-	08/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	80

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_
		RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date extracted	-	06/03/2014
Date analysed	-	07/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	96

PAHs in Soil		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_ RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date extracted	-	6/03/2014
Date analysed	-	7/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99

Total Phenolics in Soil		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_ RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date extracted	-	07/03/2014
Date analysed	-	07/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_ RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date digested	-	06/03/2014
Date analysed	-	06/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	5
Copper	mg/kg	<1
Lead	mg/kg	5
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	3



Moisture		
Our Reference:	UNITS	106077-1
Your Reference	-----	T01_030314_ RP
Date Sampled	-----	03/03/2014
Type of sample		soil
Date prepared	-	6/03/2014
Date analysed	-	7/03/2014
Moisture	%	18

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/03/2014	[NT]	[NT]	LCS-5	06/03/2014
Date analysed	-			08/03/2014	[NT]	[NT]	LCS-5	08/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	88%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	88%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	82%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	86%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	89%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	92%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	93%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	86	[NT]	[NT]	LCS-5	85%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/03/2014	[NT]	[NT]	LCS-3	06/03/2014
Date analysed	-			07/03/2014	[NT]	[NT]	LCS-3	07/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	120%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	104%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	95%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	120%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	104%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	95%
Surrogate o-Terphenyl	%		Org-003	101	[NT]	[NT]	LCS-3	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/03/2014	[NT]	[NT]	LCS-3	06/03/2014
Date analysed	-			07/03/2014	[NT]	[NT]	LCS-3	07/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	94%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	95%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	95%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	88%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	93%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	87%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-3	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	101	[NT]	[NT]	LCS-3	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			07/03/2014	[NT]	[NT]	LCS-1	07/03/2014
Date analysed	-			07/03/2014	[NT]	[NT]	LCS-1	07/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	84%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			06/03/2014	[NT]	[NT]	LCS-15	06/03/2014
Date analysed	-			06/03/2014	[NT]	[NT]	LCS-15	06/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-15	93%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-15	101%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-15	100%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-15	96%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-15	95%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-15	89%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-15	99%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-15	98%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**CERTIFICATE OF ANALYSIS**

**106170**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	07/03/14 / 07/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 14/03/14 / 12/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager



VOCs in soil Our Reference: Your Reference	UNITS -----	106170-1 T01_050314_ RP
Date Sampled Type of sample	-----	05/03/2014 soil
Date extracted	-	10/03/2014
Date analysed	-	12/03/2014
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1

VOCs in soil Our Reference: Your Reference	UNITS -----	106170-1 T01_050314_ RP
Date Sampled Type of sample	-----	05/03/2014 soil
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	97
Surrogate aaa-Trifluorotoluene	%	92
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	100

vTRH(C6-C10)/BTEXn in Soil		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date extracted	-	10/03/2014
Date analysed	-	12/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date extracted	-	10/03/2014
Date analysed	-	11/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	97

PAHs in Soil		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date extracted	-	10/03/2014
Date analysed	-	11/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	106

Total Phenolics in Soil		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date extracted	-	10/03/2014
Date analysed	-	10/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date digested	-	10/03/2014
Date analysed	-	10/03/2014
Arsenic	mg/kg	7
Cadmium	mg/kg	<0.4
Chromium	mg/kg	14
Copper	mg/kg	35
Lead	mg/kg	44
Mercury	mg/kg	<0.1
Nickel	mg/kg	13
Zinc	mg/kg	77

Moisture		
Our Reference:	UNITS	106170-1
Your Reference	-----	T01_050314_ RP
Date Sampled	-----	05/03/2014
Type of sample		soil
Date prepared	-	10/03/2014
Date analysed	-	11/03/2014
Moisture	%	13



MethodID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
Date extracted	-			10/03/2014	[NT]	[NT]	LCS-4	10/03/2014
Date analysed	-			12/03/2014	[NT]	[NT]	LCS-4	12/03/2014
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	88%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	87%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	89%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	92%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	86%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	90%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	87%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	89%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	93	[NT]	[NT]	LCS-4	95%
Surrogate aaa-Trifluorotoluene	%		Org-014	92	[NT]	[NT]	LCS-4	89%
Surrogate Toluene-d8	%		Org-014	98	[NT]	[NT]	LCS-4	97%
Surrogate 4-Bromofluorobenzene	%		Org-014	98	[NT]	[NT]	LCS-4	101%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			10/03/2014	[NT]	[NT]	LCS-4	10/03/2014
Date analysed	-			12/03/2014	[NT]	[NT]	LCS-4	12/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-4	95%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-4	95%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-4	89%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-4	93%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	95%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-4	98%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	100%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	92	[NT]	[NT]	LCS-4	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			10/03/2014	[NT]	[NT]	LCS-4	10/03/2014
Date analysed	-			11/03/2014	[NT]	[NT]	LCS-4	11/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-4	79%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	101%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	86%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-4	79%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	101%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	86%
Surrogate o-Terphenyl	%		Org-003	95	[NT]	[NT]	LCS-4	86%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			10/03/2014	[NT]	[NT]	LCS-7	10/03/2014
Date analysed	-			11/03/2014	[NT]	[NT]	LCS-7	11/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	92%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	92%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	93%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	87%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	91%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-7	86%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-7	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	100	[NT]	[NT]	LCS-7	103%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			10/03/2014	[NT]	[NT]	LCS-1	10/03/2014
Date analysed	-			10/03/2014	[NT]	[NT]	LCS-1	10/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	83%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			10/03/2014	[NT]	[NT]	LCS-7	10/03/2014
Date analysed	-			10/03/2014	[NT]	[NT]	LCS-7	10/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-7	98%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-7	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	105%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-7	96%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-7	102%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106170**

Date received:

**07/03/14**

Date results expected to be reported:

**14/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	15.6
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



PLEASE FORWARD TO ENVIROLAB



ALS Laboratory please tick ->

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** *Stephanie Broches*  
**COC emailed to ALS?** ( YES / NO)  
**Email Reports to** (will default to PM if no other addresses are listed): symphony.della.coast@erm.com  
**Email Invoice to** (will default to PM if no other addresses are listed): symphony.della.coast@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:** SY-050-14  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0450099834  
**EDD FORMAT (or default):**  
**RECEIVED BY:** *Stephanie Broches*  
**DATE/TIME:** *10/3/14 18:55*

**FOR LABORATORY USE ONLY (Circle)**  
**Custody Seal Intact?**  Yes  No  
**Free ice / frozen ice bricks present upon receipt?**  Yes  No  
**Random Sample Temperature on Receipt:** *3°C*  
**Other comment:**

**RELINQUISHED BY:** *Stephanie Broches*  
**DATE/TIME:** *10/3/14 18:55*

**RECEIVED BY:**  
**DATE/TIME:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to TOTAL CONTAINERS)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)	Additional Information
1	T01_070314_SB	7.3.14	S	1 x jar	1	8 METALS (S-2) 13 METALS (S-3) TPH/BTEX/PAH PHENOLS (S-24) ASBESTOS VOC PCB PFOS/PFOA pH/CEC PSD sieve / TOC EC Saturated Paste Ultra Trace PAH Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
					TOTAL		

ES1405121

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

**CERTIFICATE OF ANALYSIS**

**106332**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference: **0237747, Vales Point Power Station**  
No. of samples: 1 soil  
Date samples received / completed instructions received 07/03/14 / 07/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 18/03/14 / 14/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_
		SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date extracted	-	12/03/2014
Date analysed	-	13/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	84

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_ SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date extracted	-	12/03/2014
Date analysed	-	13/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	92

PAHs in Soil		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_ SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date extracted	-	12/03/2014
Date analysed	-	12/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98

Total Phenolics in Soil		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_ SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date extracted	-	13/03/2014
Date analysed	-	13/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_ SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date digested	-	12/03/2014
Date analysed	-	12/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	<1
Lead	mg/kg	2
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	<1
Barium	mg/kg	9
Beryllium	mg/kg	<1
Cobalt	mg/kg	<1
Manganese	mg/kg	1
Vanadium	mg/kg	6

Moisture		
Our Reference:	UNITS	106332-1
Your Reference	-----	T01_070314_ SB
Date Sampled	-----	07/03/2014
Type of sample		soil
Date prepared	-	12/03/2014
Date analysed	-	13/03/2014
Moisture	%	13



MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			12/03/2014	[NT]	[NT]	LCS-1	12/03/2014
Date analysed	-			13/03/2014	[NT]	[NT]	LCS-1	13/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	88%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	88%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	82%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	84%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	91%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	92%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	91%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	91	[NT]	[NT]	LCS-1	90%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			12/03/2014	[NT]	[NT]	LCS-W2	12/03/2014
Date analysed	-			13/03/2014	[NT]	[NT]	LCS-W2	13/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-W2	97%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-W2	105%
TRHC <sub>28</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-W2	90%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-W2	97%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-W2	105%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-W2	90%
Surrogate o-Terphenyl	%		Org-003	94	[NT]	[NT]	LCS-W2	88%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			12/03/2014	[NT]	[NT]	LCS-1	12/03/2014
Date analysed	-			12/03/2014	[NT]	[NT]	LCS-1	12/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	112%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	102%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	97%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	97	[NT]	[NT]	LCS-1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			13/03/2014	[NT]	[NT]	LCS-1	13/03/2014
Date analysed	-			13/03/2014	[NT]	[NT]	LCS-1	13/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	83%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			12/03/2014	[NT]	[NT]	LCS-1	12/03/2014
Date analysed	-			12/03/2014	[NT]	[NT]	LCS-1	12/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	100%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	102%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	106%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	102%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	110%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	106%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	106%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	103%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	88%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	101%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	100%
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	105%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106332**

Date received:

**07/03/14**

Date results expected to be reported:

**18/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	8.1
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au









**CERTIFICATE OF ANALYSIS**

**106434**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	2 soils
Date samples received / completed instructions received	12/03/14 / 12/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 19/03/14 / 19/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



Jacinta Hurst  
Laboratory Manager

VOCs in soil Our Reference: Your Reference	UNITS -----	106434-2 T01_100314_ GP
Date Sampled Type of sample	-----	10/03/2014 soil
Date extracted	-	14/03/2014
Date analysed	-	15/03/2014
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1

VOCs in soil Our Reference: Your Reference	UNITS -----	106434-2 T01_100314_ GP
Date Sampled Type of sample	-----	10/03/2014 soil
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	108
Surrogate aaa-Trifluorotoluene	%	96
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	94

vTRH(C6-C10)/BTEX in Soil			
Our Reference:	UNITS	106434-1	106434-2
Your Reference	-----	T01_100314_	T01_100314_
		CM	GP
Date Sampled	-----	10/03/2014	10/03/2014
Type of sample		soil	soil
Date extracted	-	14/03/2014	14/03/2014
Date analysed	-	15/03/2014	15/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	96

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	106434-1	106434-2
Your Reference	-----	T01_100314_	T01_100314_
		CM	GP
Date Sampled	-----	10/03/2014	10/03/2014
Type of sample		soil	soil
Date extracted	-	14/03/2014	14/03/2014
Date analysed	-	17/03/2014	17/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100
Surrogate o-Terphenyl	%	98	93

PAHs in Soil Our Reference: Your Reference	UNITS -----	106434-1 T01_100314_ CM	106434-2 T01_100314_ GP
Date Sampled Type of sample	-----	10/03/2014 soil	10/03/2014 soil
Date extracted	-	14/03/2014	14/03/2014
Date analysed	-	14/03/2014	14/03/2014
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.20
Surrogate p-Terphenyl-d14	%	103	96

Total Phenolics in Soil			
Our Reference:	UNITS	106434-1	106434-2
Your Reference	-----	T01_100314_	T01_100314_
		CM	GP
Date Sampled	-----	10/03/2014	10/03/2014
Type of sample		soil	soil
Date extracted	-	14/03/2014	14/03/2014
Date analysed	-	14/03/2014	14/03/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5

Acid Extractable metals in soil			
Our Reference:	UNITS	106434-1	106434-2
Your Reference	-----	T01_100314_	T01_100314_
		CM	GP
Date Sampled	-----	10/03/2014	10/03/2014
Type of sample		soil	soil
Date digested	-	14/03/2014	14/03/2014
Date analysed	-	14/03/2014	14/03/2014
Arsenic	mg/kg	<4	4
Cadmium	mg/kg	<0.4	0.6
Chromium	mg/kg	5	23
Copper	mg/kg	<1	47
Lead	mg/kg	2	50
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	<1	18
Zinc	mg/kg	3	460



Moisture			
Our Reference:	UNITS	106434-1	106434-2
Your Reference	-----	T01_100314_	T01_100314_
		CM	GP
Date Sampled	-----	10/03/2014	10/03/2014
Type of sample		soil	soil
Date prepared	-	14/03/2014	14/03/2014
Date analysed	-	17/03/2014	17/03/2014
Moisture	%	7.6	11

MethodID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
Date extracted	-			14/03/2014	106434-2	14/03/2014    14/03/2014	LCS-1	14/03/2014
Date analysed	-			15/03/2014	106434-2	15/03/2014    15/03/2014	LCS-1	15/03/2014
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	96%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	104%
2,2-dichloropropane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	107%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	107%
1,1-dichloropropene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	106434-2	<0.2    <0.2	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	94%
bromodichloromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	102%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	106434-2	<0.5    <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	95%
1,2-dibromoethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	106434-2	<1    <1	LCS-1	113%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	106434-2	<2    <2	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
isopropylbenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	106	106434-2	108    107    RPD: 1	LCS-1	109%
Surrogate aaa-Trifluorotoluene	%		Org-014	98	106434-2	96    102    RPD: 6	LCS-1	107%
Surrogate Toluene-d8	%		Org-014	99	106434-2	99    99    RPD: 0	LCS-1	98%
Surrogate 4-Bromofluorobenzene	%		Org-014	94	106434-2	94    93    RPD: 1	LCS-1	96%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			14/03/2014	106434-2	14/03/2014    14/03/2014	LCS-1	14/03/2014
Date analysed	-			15/03/2014	106434-2	15/03/2014    15/03/2014	LCS-1	15/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	106434-2	<25    <25	LCS-1	92%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	106434-2	<25    <25	LCS-1	92%
Benzene	mg/kg	0.2	Org-016	<0.2	106434-2	<0.2    <0.2	LCS-1	71%
Toluene	mg/kg	0.5	Org-016	<0.5	106434-2	<0.5    <0.5	LCS-1	85%
Ethylbenzene	mg/kg	1	Org-016	<1	106434-2	<1    <1	LCS-1	91%
m+p-xylene	mg/kg	2	Org-016	<2	106434-2	<2    <2	LCS-1	101%
o-Xylene	mg/kg	1	Org-016	<1	106434-2	<1    <1	LCS-1	102%
naphthalene	mg/kg	1	Org-014	<1	106434-2	<1    <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	106434-2	96    102    RPD: 6	LCS-1	99%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			14/03/2014	[NT]	[NT]	LCS-1	14/03/2014
Date analysed	-			14/03/2014	[NT]	[NT]	LCS-1	17/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	77%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	74%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	94%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	77%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	74%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	94%
Surrogate o-Terphenyl	%		Org-003	87	[NT]	[NT]	LCS-1	76%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			14/03/2014	[NT]	[NT]	LCS-1	14/03/2014
Date analysed	-			14/03/2014	[NT]	[NT]	LCS-1	14/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	104%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	99%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	98%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	109%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	[NT]	[NT]	LCS-1	97%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			14/03/2014	[NT]	[NT]	LCS-1	14/03/2014
Date analysed	-			14/03/2014	[NT]	[NT]	LCS-1	14/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	85%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			14/03/2014	[NT]	[NT]	LCS-9	14/03/2014
Date analysed	-			14/03/2014	[NT]	[NT]	LCS-9	14/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-9	99%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-9	104%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-9	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-9	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-9	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-9	94%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-9	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-9	103%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			14/03/2014
Date analysed	-			15/03/2014
Moisture	%	0.1	Inorg-008	[NT]

QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
VOCs in soil			Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]	106434-2	14/03/2014
Date analysed	-	[NT]	[NT]	106434-2	15/03/2014
Dichlorodifluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	[NT]	[NT]	106434-2	94%
cis-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	[NT]	[NT]	106434-2	101%
2,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	[NT]	[NT]	106434-2	104%
1,1,1-trichloroethane	mg/kg	[NT]	[NT]	106434-2	96%
1,1-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	106434-2	88%
bromodichloromethane	mg/kg	[NT]	[NT]	106434-2	89%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	106434-2	78%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	[NT]	[NT]	106434-2	104%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL VOCs in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	106434-2	111%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	106434-2	103%
Surrogate Toluene-d8	%	[NT]	[NT]	106434-2	100%
Surrogate 4- Bromofluorobenzene	%	[NT]	[NT]	106434-2	94%



**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than                                  >: Greater than                              LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106434**

Date received:

**12/03/14**

Date results expected to be reported:

**19/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	2 soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	15.0
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**CERTIFICATE OF ANALYSIS**

**106617**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	17/03/14 / 17/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 24/03/14 / 20/03/14

Date of Preliminary Report: None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_
		GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date extracted	-	18/03/2014
Date analysed	-	19/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	101

svTRH(C10-C40) in Soil		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_ GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date extracted	-	18/03/2014
Date analysed	-	19/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	99

PAHs in Soil		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_
		GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date extracted	-	18/03/2014
Date analysed	-	19/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97

Total Phenolics in Soil		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_ GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date extracted	-	19/03/2014
Date analysed	-	19/03/2014
Total Phenolics (as Phenol)	mg/kg	<5



Acid Extractable metals in soil		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_ GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date digested	-	18/03/2014
Date analysed	-	18/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	5
Copper	mg/kg	<1
Lead	mg/kg	6
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	3
Boron	mg/kg	<3
Barium	mg/kg	3
Beryllium	mg/kg	<1
Cobalt	mg/kg	<1
Manganese	mg/kg	3
Molybdenum	mg/kg	<1
Selenium	mg/kg	<2
Thallium	mg/kg	<2
Vanadium	mg/kg	18

Moisture		
Our Reference:	UNITS	106617-1
Your Reference	-----	T01_130314_
		GP
Date Sampled	-----	13/03/2014
Type of sample		soil
Date prepared	-	18/03/2014
Date analysed	-	19/03/2014
Moisture	%	10

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			18/03/2014	[NT]	[NT]	LCS-1	18/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	117%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	117%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	126%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	117%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	118%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	113%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	116%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	116	[NT]	[NT]	LCS-1	109%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			18/03/2014	[NT]	[NT]	LCS-2	18/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-2	19/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	106%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	95%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	126%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	106%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	95%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	126%
Surrogate o-Terphenyl	%		Org-003	96	[NT]	[NT]	LCS-2	88%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			18/03/2014	[NT]	[NT]	LCS-1	18/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	96%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	99%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	99%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	96%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	100%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	89%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	133	[NT]	[NT]	LCS-1	92%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	91%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			18/03/2014	[NT]	[NT]	LCS-2	18/03/2014
Date analysed	-			18/03/2014	[NT]	[NT]	LCS-2	18/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-2	100%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-2	109%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	105%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-2	93%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	103%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Boron	mg/kg	3	Metals-020 ICP-AES	<3	[NT]	[NT]	LCS-2	95%
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	112%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	106%
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	101%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-2	100%
Thallium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-2	100%
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	102%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888  
Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:	<b>0237747, Vales Point Power Station</b>
Envirolab Reference:	<b>106617</b>
Date received:	17/03/14
Date results expected to be reported:	<b>24/03/14</b>

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	19.8
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst  
ph: 02 9910 6200 fax: 02 9910 6201  
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au





**CERTIFICATE OF ANALYSIS**

**106677**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	18/03/14 / 18/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 25/03/14 / 25/03/14

Date of Preliminary Report: None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

VOCs in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	106677-1 D03-140314 14/03/2014 soil
Date extracted	-	20/03/2014
Date analysed	-	20/03/2014
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1
1,2,3-trichloropropane	mg/kg	<1

VOCs in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	106677-1 D03-140314 14/03/2014 soil
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
<i>Surrogate</i> Dibromofluorometha	%	112
<i>Surrogate</i> aaa-Trifluorotoluene	%	94
<i>Surrogate</i> Toluene-d8	%	99
<i>Surrogate</i> 4-Bromofluorobenzene	%	88

vTRH(C6-C10)/BTEX in Soil		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date extracted	-	20/03/2014
Date analysed	-	20/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	94

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date extracted	-	20/03/2014
Date analysed	-	20/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	96

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	106677-1 D03-140314 14/03/2014 soil
Date extracted	-	20/03/2014
Date analysed	-	21/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	112

Total Phenolics in Soil		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date extracted	-	19/03/2014
Date analysed	-	19/03/2014
Total Phenolics (as Phenol)	mg/kg	<5



PCBs in Soil		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date extracted	-	24/03/2014
Date analysed	-	24/03/2014
Arochlor 1016	mg/kg	<0.1
Arochlor 1221	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	104

Acid Extractable metals in soil		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date digested	-	20/03/2014
Date analysed	-	20/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	7
Copper	mg/kg	16
Lead	mg/kg	8
Mercury	mg/kg	<0.1
Nickel	mg/kg	7
Zinc	mg/kg	23

Moisture		
Our Reference:	UNITS	106677-1
Your Reference	-----	D03-140314
Date Sampled	-----	14/03/2014
Type of sample		soil
Date prepared	-	20/03/2014
Date analysed	-	21/03/2014
Moisture	%	17

MethodID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	98%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	105%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	105%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	107%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	90%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	114%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	122%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	109%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	116	[NT]	[NT]	LCS-1	116%
Surrogate aaa-Trifluorotoluene	%		Org-014	98	[NT]	[NT]	LCS-1	103%
Surrogate Toluene-d8	%		Org-014	100	[NT]	[NT]	LCS-1	98%
Surrogate 4-Bromofluorobenzene	%		Org-014	94	[NT]	[NT]	LCS-1	89%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	99%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	99%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	92%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	97%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	98%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	103%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	99%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	[NT]	[NT]	LCS-1	97%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	94%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	103%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	94%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	103%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	LCS-1	82%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	123%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	110%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	100%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	96%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	83	[NT]	[NT]	LCS-1	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			24/03/2014	[NT]	[NT]	LCS-11	24/03/2014
Date analysed	-			24/03/2014	[NT]	[NT]	LCS-11	24/03/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-11	94%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	102	[NT]	[NT]	LCS-11	90%



**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			20/03/2014	[NT]	[NT]	LCS-3	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-3	20/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	102%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	111%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	105%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	102%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	105%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	104%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106677**

Date received:

**18/03/14**

Date results expected to be reported:

**25/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	16.2
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**CERTIFICATE OF ANALYSIS**

**106678**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 water
Date samples received / completed instructions received	18/03/14 / 18/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 25/03/14 / 25/03/14

Date of Preliminary Report: None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	106678-1
Your Reference	-----	T02-140314- JD
Date Sampled	-----	14/03/2014
Type of sample		water
Date extracted	-	18/03/2014
Date analysed	-	19/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	98
Surrogate toluene-d8	%	94
Surrogate 4-BFB	%	100

svTRH (C10-C40) in Water		
Our Reference:	UNITS	106678-1
Your Reference	-----	T02-140314- JD
Date Sampled	-----	14/03/2014
Type of sample		water
Date extracted	-	21/03/2014
Date analysed	-	21/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	<50
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	<100
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	<100
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	<100
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	<100
Surrogate o-Terphenyl	%	75

PAHs in Water - Trace Level		
Our Reference:	UNITS	106678-1
Your Reference	-----	T02-140314- JD
Date Sampled	-----	14/03/2014
Type of sample		water
Date extracted	-	24/03/2014
Date analysed	-	25/03/2014
Naphthalene	µg/L	<0.01
Acenaphthylene	µg/L	<0.01
Acenaphthene	µg/L	<0.01
Fluorene	µg/L	<0.01
Phenanthrene	µg/L	<0.01
Anthracene	µg/L	<0.01
Fluoranthene	µg/L	0.01
Pyrene	µg/L	<0.01
Benzo(a)anthracene	µg/L	<0.01
Chrysene	µg/L	<0.01
Benzo(b+k)fluoranthene	µg/L	<0.02
Benzo(a)pyrene	µg/L	<0.01
Dibenzo(a,h)anthracene	µg/L	<0.01
Indeno(1,2,3-c,d)pyrene	µg/L	<0.01
Benzo(g,h,i)perylene	µg/L	<0.01
Benzo(a)pyrene TEQ	µg/L	<0.05
Total +ve PAH's	µg/L	0.01
Surrogate p-Terphenyl-d14	%	80



Total Phenolics in Water		
Our Reference:	UNITS	106678-1
Your Reference	-----	T02-140314- JD
Date Sampled	-----	14/03/2014
Type of sample		water
Date extracted	-	20/03/2014
Date analysed	-	20/03/2014
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - total		
Our Reference:	UNITS	106678-1
Your Reference	-----	T02-140314- JD
Date Sampled	-----	14/03/2014
Type of sample		water
Date prepared	-	24/03/2014
Date analysed	-	24/03/2014
Arsenic-Total	µg/L	2
Cadmium-Total	µg/L	0.1
Chromium-Total	µg/L	<1
Copper-Total	µg/L	2
Lead-Total	µg/L	1
Mercury-Total	µg/L	<0.05
Nickel-Total	µg/L	3
Zinc-Total	µg/L	63
Boron-Total	µg/L	230
Barium-Total	µg/L	57
Beryllium-Total	µg/L	<0.5
Cobalt-Total	µg/L	1
Manganese-Total	µg/L	150
Molybdenum-Total	µg/L	2
Selenium-Total	µg/L	<1
Thallium-Total	µg/L	<1

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			18/03/2014	[NT]	[NT]	LCS-W1	18/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-W1	19/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	104%
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	104%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	107%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	103%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	92	[NT]	[NT]	LCS-W1	98%
Surrogate toluene-d8	%		Org-016	88	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	LCS-W1	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			21/03/2014	[NT]	[NT]	LCS-W1	21/03/2014
Date analysed	-			24/03/2014	[NT]	[NT]	LCS-W1	24/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	77%
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	98%
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	87%
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	77%
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	98%
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	87%
Surrogate o-Terphenyl	%		Org-003	105	[NT]	[NT]	LCS-W1	63%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water - Trace Level						Base II Duplicate II %RPD		
Date extracted	-			24/03/2014	[NT]	[NT]	LCS-W1	24/03/2014
Date analysed	-			25/03/2014	[NT]	[NT]	LCS-W1	25/03/2014
Naphthalene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	61%
Acenaphthylene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	76%
Phenanthrene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	76%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water - Trace Level						Base II Duplicate II %RPD		
Anthracene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	77%
Pyrene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	84%
Benzo(a)anthracene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	75%
Benzo(b+k)fluoranthene	µg/L	0.02	Org-012 subset	<0.02	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	LCS-W1	91%
Dibenzo(a,h)anthracene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	0.01	Org-012 subset	<0.01	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	91	[NT]	[NT]	LCS-W1	79%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-W1	20/03/2014
Date analysed	-			20/03/2014	[NT]	[NT]	LCS-W1	20/03/2014
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	90%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - total						Base II Duplicate II %RPD		
Date prepared	-			24/03/2014	[NT]	[NT]	LCS-W1	21/03/2014
Date analysed	-			24/03/2014	[NT]	[NT]	LCS-W1	21/03/2014
Arsenic-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Cadmium-Total	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	100%
Chromium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
Copper-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Lead-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	100%
Mercury-Total	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	96%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - total						Base II Duplicate II %RPD		
Nickel-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Zinc-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	111%
Boron-Total	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	104%
Barium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	104%
Beryllium-Total	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	LCS-W1	108%
Cobalt-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
Manganese-Total	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	103%
Molybdenum-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	98%
Selenium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Thallium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	101%

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

**ALS Environmental**  
Job: CHAIN OF CUSTODY  
Date Received: 19.3.14  
ALS Laboratory Time Received: 13.30

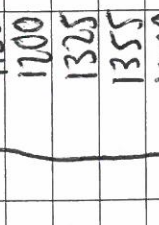
**TURNAROUND REQUIREMENTS:**  
Standard TAT (List due date):  
Non Standard or urgent TAT (List due date):  
COC SEQUENCE NUMBER (Circle):  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7

**RECEIVED BY:** Rawi  
**DATE/TIME:** 18/3 19:00  
**RELINQUISHED BY:** Simon / Forward Lab  
**DATE/TIME:** 17/3/14 12:34  
**RELINQUISHED BY:** New Castle  
**DATE/TIME:** 17/3/14 09:00  
**RELINQUISHED BY:** GP Envirolab  
**DATE/TIME:** 17/3/14 09:00

**FOR LABORATORY USE ONLY (Circle)**  
Custody Seal Intact? Yes No  
Free ice / frozen ice blocks present upon receipt? Yes No  
Random Sample Temperature on Receipt? Yes No  
Other comment: C

**ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)**  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required)  
Additional Information

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)										Additional Information				
		TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	13 METALS (S-3) + B, Mo, Ti, Se	8 METALS (S-2)	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOG	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace PAH	Ultra Trace Metals		
1	VB-MW02-0.7	S	B, 2x jar (1 no liner)	3	X	X	X	X	X	X	X	X	X	X	X	X		
2	VJ-MW05-1.0	S	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	X		
3	VD-MW05-0.1	S	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	X		
4	VD-MW05-1.0	S	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	X		
5	VL-MW01-0.1	S	B	1	X	X	X	X	X	X	X	X	X	X	X	X		
6	VL-MW01-1.0	S	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	X		
7	001-170314-GP	S	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	X		
8	VL-MW01-1.5	S	B, 1x jar	2	X	X	X	X	X	X	X	X	X	X	X	X		
9	VE-MW03-0.2	S	B, 2x jar	3	X	X	X	X	X	X	X	X	X	X	X	X		
10	VE-MW03-1.5	S	B, 2x jar	3	X	X	X	X	X	X	X	X	X	X	X	X		
11	VA-SB01-0.1	S	1x jar	1	X	X	X	X	X	X	X	X	X	X	X	X		
12	VA-SB01-0.25	S	B, 2x jar (1 no liner)	2	X	X	X	X	X	X	X	X	X	X	X	X		
				<b>TOTAL</b>														



Environmental Division  
Sydney  
Work Order  
**ES1405879**  
Telephone: +61-2-8784 8555

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; V = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.





**CERTIFICATE OF ANALYSIS**

**106752**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	19/03/14 / 19/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 26/03/14 / 24/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314
Date Sampled	-----	-GP
Type of sample		17/03/2014
		soil
Date extracted	-	20/03/2014
Date analysed	-	21/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	100

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314 -GP
Date Sampled	-----	17/03/2014
Type of sample		soil
Date extracted	-	20/03/2014
Date analysed	-	21/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	99

PAHs in Soil		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314 -GP
Date Sampled	-----	17/03/2014
Type of sample		soil
Date extracted	-	20/03/2014
Date analysed	-	21/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	104

Total Phenolics in Soil		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314
		-GP
Date Sampled	-----	17/03/2014
Type of sample		soil
Date extracted	-	19/03/2014
Date analysed	-	19/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314
		-GP
Date Sampled	-----	17/03/2014
Type of sample		soil
Date digested	-	20/03/2014
Date analysed	-	20/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	7
Copper	mg/kg	5
Lead	mg/kg	6
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	4

Moisture		
Our Reference:	UNITS	106752-1
Your Reference	-----	T01-170314
		-GP
Date Sampled	-----	17/03/2014
Type of sample		soil
Date prepared	-	20/03/2014
Date analysed	-	21/03/2014
Moisture	%	14



MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-2	20/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-2	21/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	99%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	99%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-2	92%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-2	97%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	98%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-2	103%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	99%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	[NT]	[NT]	LCS-2	97%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	94%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	103%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	94%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	103%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	LCS-1	82%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			20/03/2014	[NT]	[NT]	LCS-1	20/03/2014
Date analysed	-			21/03/2014	[NT]	[NT]	LCS-1	21/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	123%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	110%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	103%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	100%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	96%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	83	[NT]	[NT]	LCS-1	94%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Date analysed	-			19/03/2014	[NT]	[NT]	LCS-1	19/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	86%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			20/03/2014	106752-1	20/03/2014    20/03/2014	LCS-4	20/03/2014
Date analysed	-			20/03/2014	106752-1	20/03/2014    20/03/2014	LCS-4	20/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	106752-1	<4    <4	LCS-4	103%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	106752-1	<0.4    <0.4	LCS-4	109%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	106752-1	7    6    RPD: 15	LCS-4	105%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	106752-1	5    5    RPD: 0	LCS-4	106%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	106752-1	6    5    RPD: 18	LCS-4	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	106752-1	<0.1    <0.1	LCS-4	92%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	106752-1	<1    <1	LCS-4	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	106752-1	4    4    RPD: 0	LCS-4	104%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than      >: Greater than      LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106752**

Date received:

19/03/14

Date results expected to be reported:

**26/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	11.1
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au





**CERTIFICATE OF ANALYSIS**

**106955**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	24/03/14 / 24/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 31/03/14 / 27/03/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager



VOCs in soil Our Reference: Your Reference	UNITS -----	106955-1 T01-190314 -GP
Date Sampled Type of sample	-----	19/03/2014 soil
Date extracted	-	25/03/2014
Date analysed	-	26/03/2014
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1

VOCs in soil Our Reference: Your Reference	UNITS -----	106955-1 T01-190314 -GP
Date Sampled Type of sample	-----	19/03/2014 soil
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	90
Surrogate aaa-Trifluorotoluene	%	86
Surrogate Toluene-d8	%	97
Surrogate 4-Bromofluorobenzene	%	103

vTRH(C6-C10)/BTEXn in Soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date extracted	-	25/03/2014
Date analysed	-	26/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	86

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date extracted	-	25/03/2014
Date analysed	-	25/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	91

PAHs in Soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date extracted	-	25/03/2014
Date analysed	-	26/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	95

Total Phenolics in Soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date extracted	-	25/03/2014
Date analysed	-	25/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

PCBs in Soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date extracted	-	25/03/2014
Date analysed	-	26/03/2014
Arochlor 1016	mg/kg	<0.1
Arochlor 1221	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	92

Acid Extractable metals in soil		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314 -GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date digested	-	25/03/2014
Date analysed	-	25/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	7
Copper	mg/kg	7
Lead	mg/kg	5
Mercury	mg/kg	<0.1
Nickel	mg/kg	6
Zinc	mg/kg	12



Moisture		
Our Reference:	UNITS	106955-1
Your Reference	-----	T01-190314
		-GP
Date Sampled	-----	19/03/2014
Type of sample		soil
Date prepared	-	25/03/2014
Date analysed	-	26/03/2014
Moisture	%	11

MethodID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
Date analysed	-			26/03/2014	[NT]	[NT]	LCS-4	26/03/2014
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	96%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	97%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	100%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	100%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	98%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	95%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	89%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-4	100%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in soil						Base II Duplicate II %RPD		
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	102	[NT]	[NT]	LCS-4	102%
Surrogate aaa-Trifluorotoluene	%		Org-014	101	[NT]	[NT]	LCS-4	99%
Surrogate Toluene-d8	%		Org-014	98	[NT]	[NT]	LCS-4	96%
Surrogate 4-Bromofluorobenzene	%		Org-014	96	[NT]	[NT]	LCS-4	95%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
Date analysed	-			26/03/2014	[NT]	[NT]	LCS-4	26/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-4	96%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-4	96%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-4	89%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-4	91%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	97%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-4	102%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	99%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	101	[NT]	[NT]	LCS-4	87%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
Date analysed	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-4	111%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	110%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	93%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-4	111%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	110%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	93%
Surrogate o-Terphenyl	%		Org-003	92	[NT]	[NT]	LCS-4	83%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
Date analysed	-			26/03/2014	[NT]	[NT]	LCS-4	26/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	96%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	98%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	97%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	95%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	95%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-4	86%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	94	[NT]	[NT]	LCS-4	90%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-1	25/03/2014
Date analysed	-			25/03/2014	[NT]	[NT]	LCS-1	25/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	87%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/03/2014	[NT]	[NT]	LCS-4	25/03/2014
Date analysed	-			26/03/2014	[NT]	[NT]	LCS-4	26/03/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-4	100%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	91	[NT]	[NT]	LCS-4	86%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			25/03/2014	[NT]	[NT]	LCS-1	25/03/2014
Date analysed	-			25/03/2014	[NT]	[NT]	LCS-1	25/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	101%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	109%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	95%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than      >: Greater than      LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.





**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**106955**

Date received:

**24/03/14**

Date results expected to be reported:

**31/03/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	14.5
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**CERTIFICATE OF ANALYSIS**

**107225**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	27/03/14 / 27/03/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 3/04/14 / 2/04/14

Date of Preliminary Report: None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_
		QM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date extracted	-	28/03/2014
Date analysed	-	29/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	91

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_
		CM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date extracted	-	28/03/2014
Date analysed	-	31/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	88

PAHs in Soil		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_
		CM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date extracted	-	28/03/2014
Date analysed	-	28/03/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91

Total Phenolics in Soil		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_ CM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date extracted	-	31/03/2014
Date analysed	-	31/03/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_
		CM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date digested	-	28/03/2014
Date analysed	-	28/03/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	5
Copper	mg/kg	<1
Lead	mg/kg	4
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	3
Boron	mg/kg	<3
Barium	mg/kg	5
Beryllium	mg/kg	<1
Cobalt	mg/kg	<1
Manganese	mg/kg	2
Molybdenum	mg/kg	<1
Selenium	mg/kg	<2
Thallium	mg/kg	<2
Vanadium	mg/kg	5



Moisture		
Our Reference:	UNITS	107225-1
Your Reference	-----	T01_240314_ CM
Date Sampled	-----	24/03/2014
Type of sample		soil
Date prepared	-	28/03/2014
Date analysed	-	31/03/2014
Moisture	%	10

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			28/03/2014	[NT]	[NT]	LCS-5	28/03/2014
Date analysed	-			29/03/2014	[NT]	[NT]	LCS-5	29/03/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	93%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	93%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	107%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	94%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	90%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	88%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	90%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	95	[NT]	[NT]	LCS-5	99%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			28/03/2014	[NT]	[NT]	LCS-5	28/03/2014
Date analysed	-			31/03/2014	[NT]	[NT]	LCS-5	31/03/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	92%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	107%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	131%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	92%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	107%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	131%
Surrogate o-Terphenyl	%		Org-003	94	[NT]	[NT]	LCS-5	81%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			28/03/2014	[NT]	[NT]	LCS-5	28/03/2014
Date analysed	-			28/03/2014	[NT]	[NT]	LCS-5	28/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	95%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	95%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	97%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	92%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	95%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	89%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-5	96%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	90	[NT]	[NT]	LCS-5	90%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			31/03/2014	[NT]	[NT]	LCS-1	31/03/2014
Date analysed	-			31/03/2014	[NT]	[NT]	LCS-1	31/03/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	90%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			28/03/2014	[NT]	[NT]	LCS-2	28/03/2014
Date analysed	-			28/03/2014	[NT]	[NT]	LCS-2	28/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-2	101%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-2	107%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	102%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-2	80%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	104%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	105%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Boron	mg/kg	3	Metals-020 ICP-AES	<3	[NT]	[NT]	LCS-2	102%
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	105%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	92%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	103%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	108%
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	100%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-2	100%
Thallium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-2	97%
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	106%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than                                      >: Greater than                              LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888  
Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:	<b>0237747, Vales Point Power Station</b>
Envirolab Reference:	<b>107225</b>
Date received:	27/03/14
Date results expected to be reported:	<b>3/04/14</b>

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	12.1
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst  
ph: 02 9910 6200 fax: 02 9910 6201  
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au





**CERTIFICATE OF ANALYSIS**

**107360**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** Stephanie Brooks

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 Soil
Date samples received / completed instructions received	31/3/2014 / 31/3/2014

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 7/04/14 / 7/04/14

Date of Preliminary Report: Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_
		SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date extracted	-	01/04/2014
Date analysed	-	02/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	78

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date extracted	-	01/04/2014
Date analysed	-	02/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	97

PAHs in Soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date extracted	-	1/04/2014
Date analysed	-	1/04/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99

Total Phenolics in Soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date extracted	-	03/04/2014
Date analysed	-	03/04/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date digested	-	02/04/2014
Date analysed	-	02/04/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	<1
Lead	mg/kg	3
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	<1
Barium	mg/kg	3
Beryllium	mg/kg	<1
Cobalt	mg/kg	<1
Manganese	mg/kg	<1
Vanadium	mg/kg	19
Boron	mg/kg	<3
Molybdenum	mg/kg	<1
Thallium	mg/kg	<2
Selenium	mg/kg	<2

Miscellaneous Inorg - soil		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date prepared	-	04/04/2014
Date analysed	-	04/04/2014
pH 1:5 soil:water	pHUnits	5.3

Moisture		
Our Reference:	UNITS	107360-1
Your Reference	-----	T01_260314_ SB
Date Sampled	-----	26/03/2014
Type of sample		Soil
Date prepared	-	1/04/2014
Date analysed	-	2/04/2014
Moisture	%	12



MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			01/04/2014	[NT]	[NT]	LCS-5	01/04/2014
Date analysed	-			02/04/2014	[NT]	[NT]	LCS-5	02/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	117%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	117%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	113%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	117%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	119%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	118%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	117%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	86	[NT]	[NT]	LCS-5	80%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			01/04/2014	[NT]	[NT]	LCS-1	01/04/2014
Date analysed	-			02/04/2014	[NT]	[NT]	LCS-1	02/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	90%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	96%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	98%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	90%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	96%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	98%
Surrogate o-Terphenyl	%		Org-003	99	[NT]	[NT]	LCS-1	88%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			01/04/2014	[NT]	[NT]	LCS-1	01/04/2014
Date analysed	-			01/04/2014	[NT]	[NT]	LCS-1	01/04/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	104%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	109%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	104%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	100%

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	95%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	114%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	97	[NT]	[NT]	LCS-1	95%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			03/04/2014	[NT]	[NT]	LCS-1	03/04/2014
Date analysed	-			03/04/2014	[NT]	[NT]	LCS-1	03/04/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	84%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			02/04/2014	[NT]	[NT]	LCS-1	02/04/2014
Date analysed	-			02/04/2014	[NT]	[NT]	LCS-1	02/04/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	108%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	114%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	110%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	111%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	110%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	108%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	111%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	111%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	115%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	117%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	112%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	117%
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	112%
Boron	mg/kg	3	Metals-020 ICP-AES	<3	[NT]	[NT]	LCS-1	104%
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	108%
Thallium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-1	105%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-1	109%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			04/04/2014	[NT]	[NT]	LCS-1	04/04/2014
Date analysed	-			04/04/2014	[NT]	[NT]	LCS-1	04/04/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	100%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than      >: Greater than      LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**CHAIN OF CUSTODY**

DADELAIDE 21 Burma Road Moorook SA 5095  
Ph: 08 8557 0800 E: aledelaide@alsglobal.com

BRISBANE 32 Strand Street Stafford QLD 4053  
Ph: 07 3243 7252 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callomonian Drive Clinton QLD 4680  
Ph: 07 7471 5900 E: gladstone@alsglobal.com

DIMACKAY 76 Halpouree Road Mackay QLD 4740  
Ph: 07 494 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171  
Ph: 03 8549 9800 E: samples.melbourne@alsglobal.com

MUDGEE 27 Sydney Road Mudgee NSW 2850  
Ph: 02 6372 6735 E: mudgee\_mail@alsglobal.com

LINCOLN 5 Rose Gum Road Warakook NSW 2304  
Ph: 02 4965 9433 E: samples.newcastle@alsglobal.com

LINCOLN 4/13 Geary Place North Hoppers NSW 2341  
Ph: 024423 2083 E: nowra@alsglobal.com

LIPPERT 19 Hed Way Malaga WA 6009  
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Deanna Court Bohle QLD 4818  
Ph: 07 4736 0660 E: townsville.environmental@alsglobal.com

WOLLONGONG 99 Fanny Street Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkembla@alsglobal.com

**CLIENT:** ERM

**OFFICE:** PYRMONT

**PROJECT:** VALES POINT POWER STATION

**ORDER NUMBER:** 0237747

**PROJECT MANAGER:** JOHN EWING

**SAMPLER:** *RYAN MANNING G.P.*

**COC emailed to ALS?** ( YES / NO )

**EDD FORMAT (or default):**

**EMAIL Reports to (will default to PM if no other addresses are listed):** symphony.dellanorth@erm.com

**EMAIL Invoice to (will default to PM if no other addresses are listed):** symphony.dellanorth@erm.com

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**TURNAROUND REQUIREMENTS:**

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

**ALS QUOTE NO.:**

**CONTACT PH:** 0401 776 290

**SAMPLER MOBILE:**

**FOR LABORATORY USE ONLY (Circle)**

**Custody Seal Intact?** Yes No

**Free ice / frozen ice bricks present upon receipt?** Yes No

**Random Sample Temperature on Receipt:** °C

**Other comment:**

**RECEIVED BY:** *Stevie*

**DATE/TIME:** *2/4/14 9:30*

**RELINQUISHED BY:** *Stevie*

**DATE/TIME:** *2/4/14 9:30*

**RECEIVED BY:** *Subbia / Forward Lab / Split WO*

**DATE/TIME:** *NEWCASTLE*

**Organised By / Date:** *0-3-5-6-9+10*

**Relinquished By / Date:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINER INFORMATION (refer to)	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed in bracket with sample ID) (Unfiltered bottle required for all listed bottles required)										Additional information						
							13 METALS (S-3) + B Mo, TI, Se	8 METALS (S-2)	TPH/BTEX/PAH PHENOLS (S-24)	ASBESTOS	VOC	PB	PFOS/PFOA	pH/CEC	PSD sieve / TOC	EC Saturated Paste		Ultra Trace Metals	Ultra Trace PAH				
1	VM_MW02_0.1	31/3/14 1230	S	1x jar, B		2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.	
2	VM_MW05_0.1	1250	S	"		2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3	VM_S801_0.1	1335	S	"		2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4	VE_MW01_0.1	1330	S	1x jar		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	VC_S803_0.1	1450	S	2x jar (1 no lines), B		3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	VC_MW08_0.1	1445	S	"		3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
7	001-310314_0.1	1445	S	1x jar		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8	VL_MW11_0.1	1540	S	"		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
9	VL_S801_0.1	1600	S	1x jar, B		2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10	T01-310314-GP	1600	S	1x jar		1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
11	VL_S801_0.1	1645	S	1x jar, B		2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
TOTAL																							

**ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed in bracket with sample ID) (Unfiltered bottle required for all listed bottles required)**

**Where Metals are required, specify Total (unfiltered bottle required for all listed bottles required)**

**ATTACH BY POST / INTERNAL SITES:** *To EnviroLab*

**Job No:** *157628*

**Date Received:** *03/04/14*

**Time Received:** *3 PM*

**Received by:** *HW*

**Temp:** *3 PM*

**Cooling:** *Ice/icepack*

**Security:** *Intact/Intact/None*

**Environmental Division Sydney Work Order ES1407203**

**EnviroLab Services 12 Ashley St Chatswood NSW 2087 Ph: (02) 9370 6200 Telephone: + 61-2-8784 8555**

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

**CERTIFICATE OF ANALYSIS**

**107628**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 soil
Date samples received / completed instructions received	03/04/14 / 03/04/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 10/04/14 / 9/04/14

Date of Preliminary Report: Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314
		-GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date extracted	-	04/04/2014
Date analysed	-	05/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92



svTRH (C10-C40) in Soil		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314 -GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date extracted	-	04/04/2014
Date analysed	-	07/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Surrogate o-Terphenyl	%	97

PAHs in Soil		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314 -GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date extracted	-	04/04/2014
Date analysed	-	5/04/2014
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	95

Total Phenolics in Soil		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314 -GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date extracted	-	03/04/2014
Date analysed	-	03/04/2014
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314 -GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date digested	-	04/04/2014
Date analysed	-	04/04/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	6
Copper	mg/kg	2
Lead	mg/kg	5
Mercury	mg/kg	<0.1
Nickel	mg/kg	1
Zinc	mg/kg	11

Moisture		
Our Reference:	UNITS	107628-1
Your Reference	-----	T01-310314
		-GP
Date Sampled	-----	31/03/2014
Type of sample		soil
Date prepared	-	4/04/2014
Date analysed	-	7/04/2014
Moisture	%	15

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-5	04/04/2014
Date analysed	-			05/04/2014	[NT]	[NT]	LCS-5	05/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	95%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	95%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	86%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	92%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	99%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	100%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	100%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	92	[NT]	[NT]	LCS-5	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-5	04/04/2014
Date analysed	-			07/04/2014	[NT]	[NT]	LCS-5	07/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	101%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	99%
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	129%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	101%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	99%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	129%
Surrogate o-Terphenyl	%		Org-003	98	[NT]	[NT]	LCS-5	128%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-5	04/04/2014
Date analysed	-			05/04/2014	[NT]	[NT]	LCS-5	05/04/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	108%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	118%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	109%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	105%

Client Reference: 0237747, Vales Point Power Station

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	110%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	103%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-5	119%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	[NT]	[NT]	LCS-5	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			03/04/2014	[NT]	[NT]	LCS-1	03/04/2014
Date analysed	-			03/04/2014	[NT]	[NT]	LCS-1	03/04/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	[NT]	[NT]	LCS-1	83%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			04/04/2014	[NT]	[NT]	LCS-2	04/04/2014
Date analysed	-			04/04/2014	[NT]	[NT]	LCS-2	04/04/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-2	97%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-2	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	101%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	99%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-2	119%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-2	101%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than                                  >: Greater than                              LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## SAMPLE RECEIPT ADVICE

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888  
Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:	<b>0237747, Vales Point Power Station</b>
Envirolab Reference:	<b>107628</b>
Date received:	03/04/14
Date results expected to be reported:	<b>10/04/14</b>

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	9.0
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst  
ph: 02 9910 6200 fax: 02 9910 6201  
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405359</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : JD <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 14  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 12-MAR-2014 <b>Issue Date</b> : 19-MAR-2014  <b>No. of samples received</b> : 16 <b>No. of samples analysed</b> : 16
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_W_SW03	VR_V_SW02	VR_V_SW01	D01_110314_JD	VR_T_SW01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
				ES1405359-001	ES1405359-002	ES1405359-003	ES1405359-004	ES1405359-005
Compound	CAS Number	LOR	Unit					
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	<2
Arsenic	7440-38-2	0.5	µg/L	2.4	2.8	2.8	2.8	3.0
Barium	7440-39-3	1	µg/L	14	12	11	12	13
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	100	µg/L	4400	4280	4130	4090	4000
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Copper	7440-50-8	1	µg/L	3	2	2	2	2
Lead	7439-92-1	0.2	µg/L	0.4	0.3	0.3	1.1	0.6
Manganese	7439-96-5	0.5	µg/L	15.9	8.8	10.7	10.7	10.9
Molybdenum	7439-98-7	0.1	µg/L	12.6	12.0	12.3	13.1	13.1
Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	7440-28-0	0.1	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	0.5	µg/L	3.6	4.5	4.5	4.7	4.6
Zinc	7440-66-6	5	µg/L	33	9	31	19	14
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_W_SW03	VR_V_SW02	VR_V_SW01	D01_110314_JD	VR_T_SW01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-001	ES1405359-002	ES1405359-003	ES1405359-004	ES1405359-005
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_W_SW03	VR_V_SW02	VR_V_SW01	D01_110314_JD	VR_T_SW01
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-001	ES1405359-002	ES1405359-003	ES1405359-004	ES1405359-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	35.8	35.2	38.9	39.2	38.6
2-Chlorophenol-D4	93951-73-6	0.1	%	68.6	70.8	71.2	73.9	73.1
2,4,6-Tribromophenol	118-79-6	0.1	%	79.6	91.7	99.9	105	109
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	61.9	61.4	54.2	60.0	57.8
Anthracene-d10	1719-06-8	0.1	%	73.8	75.3	73.9	75.2	73.1
4-Terphenyl-d14	1718-51-0	0.1	%	71.0	71.8	70.2	72.0	70.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	112	108	92.0	93.7
Toluene-D8	2037-26-5	0.1	%	92.7	96.0	87.8	92.2	84.0
4-Bromofluorobenzene	460-00-4	0.1	%	126	121	126	112	118
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.8	94.8	72.5	85.4	88.7
Anthracene-d10	1719-06-8	0.1	%	90.5	100	74.8	91.9	93.1
4-Terphenyl-d14	1718-51-0	0.1	%	90.9	100	73.5	95.7	95.3





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_W_SW04	VR_W_SW01	VR_W_SW02	VR_V_SW03	T02_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-006	ES1405359-007	ES1405359-008	ES1405359-009	ES1405359-010
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	<2
Arsenic	7440-38-2	0.5	µg/L	3.0	3.2	3.1	3.1	3.1
Barium	7440-39-3	1	µg/L	13	13	13	12	12
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	100	µg/L	3960	3930	3880	3780	3820
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Copper	7440-50-8	1	µg/L	2	2	2	2	3
Lead	7439-92-1	0.2	µg/L	0.4	0.3	0.2	0.4	0.2
Manganese	7439-96-5	0.5	µg/L	16.7	13.6	12.3	17.4	8.1
Molybdenum	7439-98-7	0.1	µg/L	12.7	12.9	12.8	12.3	12.9
Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	7440-28-0	0.1	µg/L	0.1	<0.1	0.1	<0.1	<0.1
Vanadium	7440-62-2	0.5	µg/L	4.9	4.6	5.0	4.4	4.3
Zinc	7440-66-6	5	µg/L	26	16	16	13	13
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_W_SW04	VR_W_SW01	VR_W_SW02	VR_V_SW03	T02_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-006	ES1405359-007	ES1405359-008	ES1405359-009	ES1405359-010
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_W_SW04	VR_W_SW01	VR_W_SW02	VR_V_SW03	T02_110314_JD
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-006	ES1405359-007	ES1405359-008	ES1405359-009	ES1405359-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	35.0	36.5	45.5	41.3	42.2
2-Chlorophenol-D4	93951-73-6	0.1	%	67.8	67.3	77.6	74.8	80.9
2,4,6-Tribromophenol	118-79-6	0.1	%	97.6	98.1	91.8	92.9	105
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	53.9	50.8	77.2	71.3	61.9
Anthracene-d10	1719-06-8	0.1	%	67.1	65.6	82.4	79.3	85.3
4-Terphenyl-d14	1718-51-0	0.1	%	64.2	62.5	76.2	74.1	78.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	113	104	115	113	117
Toluene-D8	2037-26-5	0.1	%	90.9	85.8	98.1	94.9	93.4
4-Bromofluorobenzene	460-00-4	0.1	%	127	118	122	118	120
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.1	91.0	94.6	98.0	102
Anthracene-d10	1719-06-8	0.1	%	90.9	96.8	101	102	105
4-Terphenyl-d14	1718-51-0	0.1	%	92.5	102	105	106	112



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				D04_110314_JD	VR_T_SW03	VR_T_SW02	R01_110314_JD	TS1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-011	ES1405359-012	ES1405359-013	ES1405359-014	ES1405359-015
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Boron	7440-42-8	0.05	mg/L	----	----	----	<0.05	----
Barium	7440-39-3	0.001	mg/L	----	----	----	<0.001	----
Beryllium	7440-41-7	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	----	----	----	<0.001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Manganese	7439-96-5	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Selenium	7782-49-2	0.01	mg/L	----	----	----	<0.01	----
Vanadium	7440-62-2	0.01	mg/L	----	----	----	<0.01	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	<0.001	----
Thallium	7440-28-0	0.001	mg/L	----	----	----	<0.001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	<2	<2	<2	----	----
Arsenic	7440-38-2	0.5	µg/L	<b>3.2</b>	<b>3.2</b>	<b>3.2</b>	----	----
Barium	7440-39-3	1	µg/L	<b>11</b>	<b>12</b>	<b>12</b>	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Boron	7440-42-8	100	µg/L	<b>3800</b>	<b>3760</b>	<b>3710</b>	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	<0.2	----	----
Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	<0.2	----	----
Copper	7440-50-8	1	µg/L	<b>2</b>	<b>2</b>	<b>2</b>	----	----
Lead	7439-92-1	0.2	µg/L	<0.2	<b>0.3</b>	<b>0.2</b>	----	----
Manganese	7439-96-5	0.5	µg/L	<b>7.5</b>	<b>10.9</b>	<b>7.9</b>	----	----
Molybdenum	7439-98-7	0.1	µg/L	<b>12.9</b>	<b>12.3</b>	<b>13.0</b>	----	----
Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Thallium	7440-28-0	0.1	µg/L	<0.1	<b>0.1</b>	<0.1	----	----
Vanadium	7440-62-2	0.5	µg/L	<b>4.4</b>	<b>5.2</b>	<b>4.3</b>	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	D04_110314_JD	VR_T_SW03	VR_T_SW02	R01_110314_JD	TS1
11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
	ES1405359-011	ES1405359-012	ES1405359-013	ES1405359-014	ES1405359-015

Compound	CAS Number	LOR	Unit	ES1405359-011	ES1405359-012	ES1405359-013	ES1405359-014	ES1405359-015
----------	------------	-----	------	---------------	---------------	---------------	---------------	---------------

### EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued

Zinc	7440-66-6	5	µg/L	10	14	12	----	----
------	-----------	---	------	----	----	----	------	------

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	----
Fluorene	86-73-7	1.0	µg/L	----	----	----	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	<1.0	----
Anthracene	120-12-7	1.0	µg/L	----	----	----	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	<1.0	----
Pyrene	129-00-0	1.0	µg/L	----	----	----	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	<1.0	----
Chrysene	218-01-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	----	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	----	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	----	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	<0.5	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				D04_110314_JD	VR_T_SW03	VR_T_SW02	R01_110314_JD	TS1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-011	ES1405359-012	ES1405359-013	ES1405359-014	ES1405359-015
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	18
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	15
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	15
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	15
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	15
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	30
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	78
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	15
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	----	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				D04_110314_JD	VR_T_SW03	VR_T_SW02	R01_110314_JD	TS1
				11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00	11-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405359-011	ES1405359-012	ES1405359-013	ES1405359-014	ES1405359-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	----	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	----	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	43.1	42.1	41.9	27.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	79.9	77.3	79.0	45.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	104	102	106	60.7	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	65.7	65.2	67.1	66.6	----
Anthracene-d10	1719-06-8	0.1	%	81.9	80.9	82.9	76.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	75.1	74.6	77.2	81.6	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	116	117	111	103
Toluene-D8	2037-26-5	0.1	%	106	128	112	87.3	103
4-Bromofluorobenzene	460-00-4	0.1	%	121	123	124	104	103
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	96.6	90.4	90.3	----	----
Anthracene-d10	1719-06-8	0.1	%	100	93.4	94.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	105	96.3	96.8	----	----



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>TB1</b>	----	----	----	----
------------	------	------	------	------

Client sampling date / time

11-MAR-2014 15:00	----	----	----	----
-------------------	------	------	------	------

Compound	CAS Number	LOR	Unit	ES1405359-016	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EP080/071: Total Petroleum Hydrocarbons

<b>C6 - C9 Fraction</b>	----	20	µg/L	<20	----	----	----	----
-------------------------	------	----	------	-----	------	------	------	------

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

<b>C6 - C10 Fraction</b>	C6_C10	20	µg/L	<20	----	----	----	----
--------------------------	--------	----	------	-----	------	------	------	------

<b>C6 - C10 Fraction minus BTEX (F1)</b>	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
--	-------------	----	------	-----	------	------	------	------

### EP080: BTEXN

<b>Benzene</b>	71-43-2	1	µg/L	<1	----	----	----	----
----------------	---------	---	------	----	------	------	------	------

<b>Toluene</b>	108-88-3	2	µg/L	<2	----	----	----	----
----------------	----------	---	------	----	------	------	------	------

<b>Ethylbenzene</b>	100-41-4	2	µg/L	<2	----	----	----	----
---------------------	----------	---	------	----	------	------	------	------

<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
--------------------------------	-------------------	---	------	----	------	------	------	------

<b>ortho-Xylene</b>	95-47-6	2	µg/L	<2	----	----	----	----
---------------------	---------	---	------	----	------	------	------	------

<b>Total Xylenes</b>	1330-20-7	2	µg/L	<2	----	----	----	----
----------------------	-----------	---	------	----	------	------	------	------

<b>Sum of BTEX</b>	----	1	µg/L	<1	----	----	----	----
--------------------	------	---	------	----	------	------	------	------

<b>Naphthalene</b>	91-20-3	5	µg/L	<5	----	----	----	----
--------------------	---------	---	------	----	------	------	------	------

### EP080S: TPH(V)/BTEX Surrogates

<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>107</b>	----	----	----	----
------------------------------	------------	-----	---	------------	------	------	------	------

<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>84.9</b>	----	----	----	----
-------------------	-----------	-----	---	-------------	------	------	------	------

<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>101</b>	----	----	----	----
-----------------------------	----------	-----	---	------------	------	------	------	------





## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405359</b>	<b>Page</b>	: 1 of 13
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 12-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 19-MAR-2014
<b>Sampler</b>	: JD	<b>No. of samples received</b>	: 16
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 16
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Pabi Subba  
Shobhna Chandra

#### Position

Senior Spectroscopist  
Senior Organic Chemist  
Metals Coordinator

#### Accreditation Category

Sydney Inorganics  
Sydney Organics  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3342582)</b>									
ES1405236-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0084	0.0087	2.4	0% - 20%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.014	0.015	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.122	0.126	3.1	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.137	0.143	4.2	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.009	0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.010	0.012	13.8	0% - 50%
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.017	0.020	12.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1405243-010	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.013	0.012	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	<0.005	38.6	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3339142)</b>									
ES1405329-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341911)</b>									
EN1400663-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341911) - continued</b>									
ES1405243-010	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3341912)</b>									
ES1405359-004	D01_110314_JD	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3345202)</b>									
ES1405359-001	VR_W_SW03	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	12.6	13.1	3.6	0% - 20%
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	0.4	0.4	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	2.4	2.9	20.1	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	15.9	15.4	2.8	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	3.6	5.0	33.3	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	14	14	0.0	0% - 50%
		EG093A-T: Copper	7440-50-8	1	µg/L	3	3	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	4400	4400	0.2	0% - 20%
EG093A-T: Zinc	7440-66-6	5	µg/L	33	33	0.0	No Limit		
ES1405359-011	D04_110314_JD	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	12.9	12.3	4.6	0% - 20%
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	3.2	3.1	3.5	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	7.5	7.7	1.8	0% - 50%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	4.4	4.4	0.0	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	11	12	0.0	0% - 50%
		EG093A-T: Copper	7440-50-8	1	µg/L	2	2	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3800	3760	0.9	0% - 20%
EG093A-T: Zinc	7440-66-6	5	µg/L	10	9	0.0	No Limit		
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3345203)</b>									
ES1405359-001	VR_W_SW03	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
ES1405359-011	D04_110314_JD	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3339864)</b>									
ES1405359-001	VR_W_SW03	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405359-007	VR_W_SW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3339864)</b>									
ES1405359-001	VR_W_SW03	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405359-007	VR_W_SW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3339864)</b>									
ES1405359-001	VR_W_SW03	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405359-007	VR_W_SW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3342582)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.7	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.4	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.5	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	106	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.4	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.9	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	107	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	101	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.8	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	101	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339142)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	101	77	115	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341911)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	101	77	115	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341912)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	104	77	115	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3345202)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	90.5	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	94.6	82	128	
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	114	79	123	
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	95.2	80	118	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	109	86	126	
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	116	90	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	101	84	128	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	107	87	125	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	109	86	126	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	98.2	90	126	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3345202) - continued</b>									
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	100	85	125	
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	107	81	127	
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	99.8	84	126	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	106	82	128	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3345203)</b>									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	99.2	75	133	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3337907)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	44.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	90.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	88.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	85.4	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	105	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	81.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	93.1	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	95.0	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	93.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	91.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	78.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	52.9	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3338163)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	64.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	71.5	42.5	114	
		2	µg/L	<2.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3338163) - continued</b>									
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.9	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	86.1	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	80.0	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	90.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	65.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	84.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	91.0	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	22.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338163)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	82.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	88.5	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	79.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	92.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	83.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	87.9	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	99.1	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	97.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	66.2	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	69.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3338163) - continued</b>									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.7	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	66.9	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	63.9	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	66.4	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	80.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3337906)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	107	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	102	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	76.3	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3338162)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	93.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.7	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	104	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339864)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.9	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3337906)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	111	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	88.1	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	77.7	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3338162)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.1	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	101	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339864)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	83.0	75	127	
<b>EP080: BTEXN (QCLot: 3339864)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	101	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.4	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3339864) - continued</b>									
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	81.2	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3337779)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	110	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	101	59	123	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	113	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	110	64	122	
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	103	62	124	
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	108	66	124	
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	103	64	130	
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	110	64	126	
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	92.4	62	126	
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	111	62	126	
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	124	56	126	
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	97.3	63	127	
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	107	64	128	
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	123	35	133	
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	120	58	128	
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	103	65	127	
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	104	64	124	
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	119	57	127	
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	115	53.6	131	
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	77.0	60	124	
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	110	64	124	
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	111	65	125	
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	106	66	128	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3342582)</b>								
ES1405243-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.2	70	130	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	101	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3342582) - continued</b>							
ES1405243-001	Anonymous	EG020A-T: Barium	7440-39-3	1 mg/L	102	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.7	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	102	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.3	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	100	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.2	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	96.0	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.6	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339142)</b>							
ES1405359-014	R01_110314_JD	EG035T: Mercury	7439-97-6	0.010 mg/L	88.4	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341911)</b>							
ES1405243-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	83.2	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341912)</b>							
ES1405359-005	VR_T_SW01	EG035T: Mercury	7439-97-6	0.010 mg/L	72.8	70	130
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3345202)</b>							
ES1405359-002	VR_V_SW02	EG093A-T: Arsenic	7440-38-2	50 µg/L	122	70	130
		EG093A-T: Barium	7440-39-3	50 µg/L	110	70	130
		EG093A-T: Beryllium	7440-41-7	50 µg/L	94.0	70	130
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	102	70	130
		EG093A-T: Chromium	7440-47-3	50 µg/L	105	70	130
		EG093A-T: Cobalt	7440-48-4	50 µg/L	99.3	70	130
		EG093A-T: Copper	7440-50-8	50 µg/L	103	70	130
		EG093A-T: Lead	7439-92-1	50 µg/L	110	70	130
		EG093A-T: Manganese	7439-96-5	50 µg/L	103	70	130
		EG093A-T: Nickel	7440-02-0	50 µg/L	121	70	130
		EG093A-T: Vanadium	7440-62-2	50 µg/L	108	70	130
		EG093A-T: Zinc	7440-66-6	50 µg/L	110	70	130
		<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339864)</b>					
ES1405359-001	VR_W_SW03	EP080: C6 - C9 Fraction	----	325 µg/L	98.5	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339864)</b>							
ES1405359-001	VR_W_SW03	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.3	70	130
<b>EP080: BTEXN (QCLot: 3339864)</b>							
ES1405359-001	VR_W_SW03	EP080: Benzene	71-43-2	25 µg/L	105	70	130
		EP080: Toluene	108-88-3	25 µg/L	73.3	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	123	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3339864) - continued</b>							
ES1405359-001	VR_W_SW03	EP080: meta- & para-Xylene	108-38-3	25 µg/L	124	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	122	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.4	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3339142)</b>											
ES1405359-014	R01_110314_JD	EG035T: Mercury	7439-97-6	0.010 mg/L	88.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3339864)</b>											
ES1405359-001	VR_W_SW03	EP080: C6 - C9 Fraction	----	325 µg/L	98.5	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3339864)</b>											
ES1405359-001	VR_W_SW03	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.3	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3339864)</b>											
ES1405359-001	VR_W_SW03	EP080: Benzene	71-43-2	25 µg/L	105	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	73.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	123	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	124	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	122	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	25 µg/L	89.4	----	70	130	----	----		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341911)</b>											
ES1405243-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	83.2	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3341912)</b>											
ES1405359-005	VR_T_SW01	EG035T: Mercury	7439-97-6	0.010 mg/L	72.8	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3342582)</b>											
ES1405243-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.2	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	102	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.7	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	102	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	99.3	----	70	130	----	----	



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3342582) - continued</b>										
ES1405243-001	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	100	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.2	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	96.0	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.6	----	70	130	----	----
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3345202)</b>										
ES1405359-002	VR_V_SW02	EG093A-T: Arsenic	7440-38-2	50 µg/L	122	----	70	130	----	----
		EG093A-T: Barium	7440-39-3	50 µg/L	110	----	70	130	----	----
		EG093A-T: Beryllium	7440-41-7	50 µg/L	94.0	----	70	130	----	----
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	102	----	70	130	----	----
		EG093A-T: Chromium	7440-47-3	50 µg/L	105	----	70	130	----	----
		EG093A-T: Cobalt	7440-48-4	50 µg/L	99.3	----	70	130	----	----
		EG093A-T: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----
		EG093A-T: Lead	7439-92-1	50 µg/L	110	----	70	130	----	----
		EG093A-T: Manganese	7439-96-5	50 µg/L	103	----	70	130	----	----
		EG093A-T: Nickel	7440-02-0	50 µg/L	121	----	70	130	----	----
		EG093A-T: Vanadium	7440-62-2	50 µg/L	108	----	70	130	----	----
		EG093A-T: Zinc	7440-66-6	50 µg/L	110	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405359</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 12-MAR-2014
C-O-C number	: ----	Issue Date	: 19-MAR-2014
Sampler	: JD	No. of samples received	: 16
Order number	: 0237747	No. of samples analysed	: 16
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_110314_JD	11-MAR-2014	17-MAR-2014	07-SEP-2014	✓	18-MAR-2014	07-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VR_W_SW03, VR_V_SW02, VR_V_SW01, D01_110314_JD, VR_T_SW01, VR_W_SW04, VR_W_SW01, VR_W_SW02, VR_V_SW03, T02_110314_JD, D04_110314_JD, VR_T_SW03, VR_T_SW02	11-MAR-2014	----	----	----	17-MAR-2014	08-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_110314_JD	11-MAR-2014	----	----	----	14-MAR-2014	08-APR-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VR_W_SW03, VR_V_SW02, VR_V_SW01, D01_110314_JD, VR_T_SW01, VR_W_SW04, VR_W_SW01, VR_W_SW02, VR_V_SW03, T02_110314_JD, D04_110314_JD, VR_T_SW03, VR_T_SW02	11-MAR-2014	18-MAR-2014	07-SEP-2014	✓	18-MAR-2014	07-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VR_W_SW03, VR_V_SW02, VR_V_SW01, D01_110314_JD, VR_T_SW01, VR_W_SW04, VR_W_SW01, VR_W_SW02, VR_V_SW03, T02_110314_JD, D04_110314_JD, VR_T_SW03, VR_T_SW02	11-MAR-2014	18-MAR-2014	07-SEP-2014	✓	18-MAR-2014	07-SEP-2014	✓





Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_110314_JD	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VR_W_SW03, VR_V_SW01, VR_T_SW01, VR_W_SW01, VR_V_SW03, D04_110314_JD, VR_T_SW02 VR_V_SW02, D01_110314_JD, VR_W_SW04, VR_W_SW02, T02_110314_JD, VR_T_SW03,	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_110314_JD	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VR_W_SW03, VR_V_SW01, VR_T_SW01, VR_W_SW01, VR_V_SW03, D04_110314_JD, VR_T_SW02 VR_V_SW02, D01_110314_JD, VR_W_SW04, VR_W_SW02, T02_110314_JD, VR_T_SW03,	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_110314_JD	11-MAR-2014	18-MAR-2014	18-MAR-2014	✓	18-MAR-2014	27-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VR_W_SW03, VR_V_SW01, VR_T_SW01, VR_W_SW01, VR_V_SW03, D04_110314_JD, VR_T_SW02, TS1, VR_V_SW02, D01_110314_JD, VR_W_SW04, VR_W_SW02, T02_110314_JD, VR_T_SW03, R01_110314_JD, TB1	11-MAR-2014	15-MAR-2014	25-MAR-2014	✓	15-MAR-2014	25-MAR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VR_W_SW03, VR_V_SW01, VR_T_SW01, VR_W_SW01, VR_V_SW03, D04_110314_JD, VR_T_SW02, TB1	VR_V_SW02, D01_110314_JD, VR_W_SW04, VR_W_SW02, T02_110314_JD, VR_T_SW03, R01_110314_JD,	11-MAR-2014	15-MAR-2014	25-MAR-2014	✓	15-MAR-2014	25-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP132)</b>								
VR_W_SW03, VR_V_SW01, VR_T_SW01, VR_W_SW01, VR_V_SW03, D04_110314_JD, VR_T_SW02	VR_V_SW02, D01_110314_JD, VR_W_SW04, VR_W_SW02, T02_110314_JD, VR_T_SW03,	11-MAR-2014	14-MAR-2014	18-MAR-2014	✓	18-MAR-2014	23-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	4	33	12.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	2	13	15.4	9.5	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	2	13	15.4	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	15	13.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	33	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	13	7.7	4.8	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	15	13.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	33	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	13	7.7	4.8	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	3	33	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	13	7.7	4.8	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1405359-008	VR_W_SW02	Phenol-d6	13127-88-3	45.5 %	10.0-44 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1405359</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : VALES POINT POWER STATION</b> <b>Order number : 0237747</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : JD</b>	<b>Page : 1 of 3</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 12-MAR-2014</b> <b>Client Requested Due Date : 19-MAR-2014</b>	<b>Issue Date : 13-MAR-2014 13:05</b> <b>Scheduled Reporting Date : 19-MAR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 1 HARD</b> <b>Security Seal : Intact.</b>	<b>Temperature : 7.2°C - Ice present</b> <b>No. of samples received : 16</b> <b>No. of samples analysed : 16</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_110314\_JD received 100 mL for Amber Glass unpreserved, therefore PAH standard LOR analysis conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EG094B-T Total Metals in Fresh Water Suite B by ORC-ICPMS	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)
ES1405359-001	11-MAR-2014 15:00	VR_W_SW03		✓	✓	✓	✓		✓	
ES1405359-002	11-MAR-2014 15:00	VR_V_SW02		✓	✓	✓	✓		✓	
ES1405359-003	11-MAR-2014 15:00	VR_V_SW01		✓	✓	✓	✓		✓	
ES1405359-004	11-MAR-2014 15:00	D01_110314_JD		✓	✓	✓	✓		✓	
ES1405359-005	11-MAR-2014 15:00	VR_T_SW01		✓	✓	✓	✓		✓	
ES1405359-006	11-MAR-2014 15:00	VR_W_SW04		✓	✓	✓	✓		✓	
ES1405359-007	11-MAR-2014 15:00	VR_W_SW01		✓	✓	✓	✓		✓	
ES1405359-008	11-MAR-2014 15:00	VR_W_SW02		✓	✓	✓	✓		✓	
ES1405359-009	11-MAR-2014 15:00	VR_V_SW03		✓	✓	✓	✓		✓	
ES1405359-010	11-MAR-2014 15:00	T02_110314_JD		✓	✓	✓	✓		✓	
ES1405359-011	11-MAR-2014 15:00	D04_110314_JD		✓	✓	✓	✓		✓	
ES1405359-012	11-MAR-2014 15:00	VR_T_SW03		✓	✓	✓	✓		✓	
ES1405359-013	11-MAR-2014 15:00	VR_T_SW02		✓	✓	✓	✓		✓	
ES1405359-014	11-MAR-2014 15:00	R01_110314_JD	✓							✓
ES1405359-015	11-MAR-2014 15:00	TS1						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-14A PAH/Phenols (SIM)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1405359-001	11-MAR-2014 15:00	VR_W_SW03	✓		
ES1405359-002	11-MAR-2014 15:00	VR_V_SW02	✓		
ES1405359-003	11-MAR-2014 15:00	VR_V_SW01	✓		
ES1405359-004	11-MAR-2014 15:00	D01_110314_JD	✓		
ES1405359-005	11-MAR-2014 15:00	VR_T_SW01	✓		
ES1405359-006	11-MAR-2014 15:00	VR_W_SW04	✓		
ES1405359-007	11-MAR-2014 15:00	VR_W_SW01	✓		
ES1405359-008	11-MAR-2014 15:00	VR_W_SW02	✓		
ES1405359-009	11-MAR-2014 15:00	VR_V_SW03	✓		





			WATER - W-04 TRH/BTEXN	WATER - W-14A PAH/Phenols (SIM)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1405359-010	11-MAR-2014 15:00	T02_110314_JD	✓		
ES1405359-011	11-MAR-2014 15:00	D04_110314_JD	✓		
ES1405359-012	11-MAR-2014 15:00	VR_T_SW03	✓		
ES1405359-013	11-MAR-2014 15:00	VR_T_SW02	✓		
ES1405359-014	11-MAR-2014 15:00	R01_110314_JD	✓	✓	
ES1405359-016	11-MAR-2014 15:00	TB1			✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1405359</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

**Dates**

<b>Date Samples Received</b>	: 12-MAR-2014	<b>Issue Date</b>	: 18-MAR-2014 10:29
<b>Client Requested Due Date</b>	: 19-MAR-2014	<b>Scheduled Reporting Date</b>	: <b>19-MAR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 7.2°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 16
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 16

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_110314\_JD received 100 mL for Amber Glass unpreserved, therefore PAH standard LOR analysis conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total metals in Saline Water Suite A	WATER - EG093B-T Total Metals in Saline Water -Suite B	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - W-03T 15 Metals (Total) (NEPM)
ES1405359-001	11-MAR-2014 15:00	VR_W_SW03		✓	✓	✓	✓		✓	
ES1405359-002	11-MAR-2014 15:00	VR_V_SW02		✓	✓	✓	✓		✓	
ES1405359-003	11-MAR-2014 15:00	VR_V_SW01		✓	✓	✓	✓		✓	
ES1405359-004	11-MAR-2014 15:00	D01_110314_JD		✓	✓	✓	✓		✓	
ES1405359-005	11-MAR-2014 15:00	VR_T_SW01		✓	✓	✓	✓		✓	
ES1405359-006	11-MAR-2014 15:00	VR_W_SW04		✓	✓	✓	✓		✓	
ES1405359-007	11-MAR-2014 15:00	VR_W_SW01		✓	✓	✓	✓		✓	
ES1405359-008	11-MAR-2014 15:00	VR_W_SW02		✓	✓	✓	✓		✓	
ES1405359-009	11-MAR-2014 15:00	VR_V_SW03		✓	✓	✓	✓		✓	
ES1405359-010	11-MAR-2014 15:00	T02_110314_JD		✓	✓	✓	✓		✓	
ES1405359-011	11-MAR-2014 15:00	D04_110314_JD		✓	✓	✓	✓		✓	
ES1405359-012	11-MAR-2014 15:00	VR_T_SW03		✓	✓	✓	✓		✓	
ES1405359-013	11-MAR-2014 15:00	VR_T_SW02		✓	✓	✓	✓		✓	
ES1405359-014	11-MAR-2014 15:00	R01_110314_JD	✓							✓
ES1405359-015	11-MAR-2014 15:00	TS1						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-14A PAH/Phenols (SIM)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1405359-001	11-MAR-2014 15:00	VR_W_SW03	✓		
ES1405359-002	11-MAR-2014 15:00	VR_V_SW02	✓		
ES1405359-003	11-MAR-2014 15:00	VR_V_SW01	✓		
ES1405359-004	11-MAR-2014 15:00	D01_110314_JD	✓		
ES1405359-005	11-MAR-2014 15:00	VR_T_SW01	✓		
ES1405359-006	11-MAR-2014 15:00	VR_W_SW04	✓		
ES1405359-007	11-MAR-2014 15:00	VR_W_SW01	✓		
ES1405359-008	11-MAR-2014 15:00	VR_W_SW02	✓		
ES1405359-009	11-MAR-2014 15:00	VR_V_SW03	✓		



			WATER - W-04 TRH/BTEXN	WATER - W-14A PAH/Phenols (SIM)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1405359-010	11-MAR-2014 15:00	T02_110314_JD	✓		
ES1405359-011	11-MAR-2014 15:00	D04_110314_JD	✓		
ES1405359-012	11-MAR-2014 15:00	VR_T_SW03	✓		
ES1405359-013	11-MAR-2014 15:00	VR_T_SW02	✓		
ES1405359-014	11-MAR-2014 15:00	R01_110314_JD	✓	✓	
ES1405359-016	11-MAR-2014 15:00	TB1			✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

#### SYMPHONY DELTANORTH

- \*AU Certificate of Analysis - NATA ( COA ) Email Symphony.deltanorth@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email Symphony.deltanorth@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC ) Email Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG ) Email Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT ) Email Symphony.deltanorth@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com





## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1405527</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 4
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: JD		

#### Dates

Date Samples Received	: 13-MAR-2014	Issue Date	: 15-MAR-2014 13:06
Client Requested Due Date	: 26-MAR-2014	Scheduled Reporting Date	: <b>26-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.2°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 16
Security Seal	: Intact.	No. of samples analysed	: 16

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_120314 received 100mL amber glass , therefore PAH standard LOR conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA150* Particle Size Analysis by Sieving	SOIL - EG020T (solids) Total Metals by ICP-MS	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only	SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 (ICPMS not Bne) Standard 13 Metals by ICPMS	SOIL - S-04 TRH/BTEXN
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	✓	✓	✓			✓	✓	✓
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	✓	✓	✓			✓	✓	✓
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	✓	✓	✓			✓	✓	✓
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	✓	✓	✓			✓	✓	✓
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	✓	✓	✓			✓	✓	✓
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	✓	✓	✓			✓	✓	✓
ES1405527-009	13-MAR-2014 15:00	TRIP SPIKE						✓			
ES1405527-016	13-MAR-2014 15:00	TSC						✓			

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture
ES1405527-010	13-MAR-2014 15:00	TRIP BLANK	✓





Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total metals in Saline Water Suite A	WATER - EG093B-T Total Metals in Saline Water - Suite B	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN
ES1405527-011	12-MAR-2014 15:00	VR_C_SW01		✓	✓	✓	✓	✓		✓
ES1405527-012	12-MAR-2014 15:00	VR_C_SW02		✓	✓	✓	✓	✓		✓
ES1405527-013	12-MAR-2014 15:00	VR_C_SW03		✓	✓	✓	✓	✓		✓
ES1405527-014	12-MAR-2014 15:00	VR_M_SW02		✓	✓	✓	✓	✓		✓
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓						✓	

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405527**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : JD</b></p>	<p><b>Page : 1 of 4</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 13-MAR-2014</b></p> <p><b>Client Requested Due Date : 26-MAR-2014</b></p>	<p><b>Issue Date : 17-MAR-2014 15:52</b></p> <p><b>Scheduled Reporting Date : 26-MAR-2014</b></p>
---	---

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.2°C - Ice present</b></p> <p><b>No. of samples received : 16</b></p> <p><b>No. of samples analysed : 16</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **TOC analysis will be conducted by ALS Brisbane**
- **PSD analysis will be conducted by ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_120314 received 100mL amber glass , therefore PAH standard LOR conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA150* Particle Size Analysis by Sieving (Default sieves from SOIL - EG020T (solids) Total Metals by ICP-MS)	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP075 SIM Phenols only	SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - EP132B Ultratrace PAH's	SOIL - S-03 (ICPMS not Brie) Standard 13 Metals by ICPMS
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	✓	✓	✓	✓		✓	✓
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	✓	✓	✓	✓		✓	✓
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	✓	✓	✓	✓		✓	✓
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	✓	✓	✓	✓		✓	✓
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	✓	✓	✓	✓		✓	✓
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	✓	✓	✓	✓		✓	✓
ES1405527-009	13-MAR-2014 15:00	TRIP SPIKE						✓		
ES1405527-016	13-MAR-2014 15:00	TSC						✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN	SOIL - S-18 (NO MOIST) TRH(C5-C9)/BTEXN with No Moisture for TBs
ES1405527-001	12-MAR-2014 15:00	VR_C_SS01_0.20	✓	
ES1405527-002	12-MAR-2014 15:00	VR_C_SS01_0.50	✓	
ES1405527-003	12-MAR-2014 15:00	VR_C_SS03_0.15	✓	
ES1405527-004	12-MAR-2014 15:00	VR_C_SS03_0.40	✓	
ES1405527-005	12-MAR-2014 15:00	VR_C_SS02_0.10	✓	
ES1405527-006	12-MAR-2014 15:00	VR_C_SS02_0.50	✓	
ES1405527-007	12-MAR-2014 15:00	VR_M_SS02_0.25	✓	
ES1405527-008	12-MAR-2014 15:00	VR_M_SS02_0.50	✓	
ES1405527-010	13-MAR-2014 15:00	TRIP BLANK		✓



Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total Metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T Total Metals in Saline Water - Suite B by	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN
ES1405527-011	12-MAR-2014 15:00	VR_C_SW01		✓	✓	✓	✓	✓		✓
ES1405527-012	12-MAR-2014 15:00	VR_C_SW02		✓	✓	✓	✓	✓		✓
ES1405527-013	12-MAR-2014 15:00	VR_C_SW03		✓	✓	✓	✓	✓		✓
ES1405527-014	12-MAR-2014 15:00	VR_M_SW02		✓	✓	✓	✓	✓		✓
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓						✓	

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405527-015	12-MAR-2014 15:00	R01_120314	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

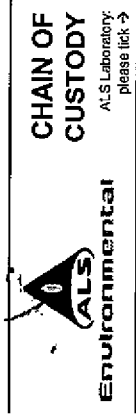
- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Attachment - Report ( SUBCO )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Attachment - Report ( SUBCO )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

DADELAIDE 21 BURNS ROAD POORAKA SA 5005  
Ph: 08 8335 0800 E: dade@alsglobal.com

CHRISTIANE 32 SHAW STREET SAFFORD QLD 4055  
Ph: 07 3280 7222 E: christian@alsglobal.com

DLG ADJUST ONE 85 CALLENDON DRIVE CLINON QLD 4680  
Ph: 07 477 9800 E: gladstone@alsglobal.com

DMACKAY 78 HARBOR ROAD MACKAY QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com

DMELBOURNE 2-4 WESSALL ROAD SPRINGVILLE VIC 3171  
Ph: 03 9519 9000 E: samples.melbourne@alsglobal.com

DMUDGE 27 SYDNEY ROAD MUDGELENS NSW 2860  
Ph: 02 6372 0235 E: mudgele@alsglobal.com

DNEWCASTLE 5 ROSS GUM ROAD WARROCK NSW 2304  
Ph: 02 4609 9139 E: samples.newcastle@alsglobal.com

DNOWRA 4/13 QUEEN PLACE NORTH NOWRA NSW 2541  
Ph: 024423 2083 E: nowra@alsglobal.com

DPERTH 10 HOOD WAY MALAYA WA 6150  
Ph: 08 9208 7655 E: samples.perth@alsglobal.com

DSTONEY 277-289 WOODPARK ROAD SMITHFIELD NSW 2164  
Ph: 02 8784 8555 E: samples.stoney@alsglobal.com

DTOWNSVILLE 14-15 OCEANA COURT BOHLE QLD 4819  
Ph: 07 4756 0500 E: townsville.environmental@alsglobal.com

LIVOLLONGONG 99 KEMMY STREET WOLLONGONG NSW 2500  
Ph: 02 4225 3125 E: portkembles@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**CONTACT PH:** 0401 776 290  
**SAMPLER:** J.D.  
**SAMPLER MOBILE:** 0731724144  
**EDD FORMAT (or default):**  
**COC emailed to ALS? (YES / NO):** YES / NO

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
**ALS QUOTE NO.:**  
**RELINQUISHED BY:** J. Devereux  
**DATE/TIME:** 12-3-14 1700

**RECEIVED BY:** Rami  
**DATE/TIME:** 15/3/14 19:00

**FOR LABORATORY USE ONLY (Circle):**  
COC SEQUENCE NUMBER (Circle):  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7

**RECEIVED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**ALS USE**

**SAMPLE DETAILS (MATRIX: SOLID (S) WATER (W))**

**CONTAINER INFORMATION**

**ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)**  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOA/POA	PH/EC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information	
1	VR-C-SS01-0-20	12-3-14	S	2x amber jars 1x bag	3	X	X	X					X			X	X		
2	VR-C-SS01-0-50	12-3-14	S	"	3	X	X	X					X			X	X		
3	VR-C-SS03-0-15	"	S	"	3	X	X	X					X			X	X		
4	VR-C-SS03-0-40	"	S	"	3	X	X	X					X			X	X		
5	VR-C-SS02-0-10	"	S	2x jars 1x bag	3	X	X	X					X			X	X		
6	VR-C-SS02-0-50	"	S	"	3	X	X	X					X			X	X		
7	VR-M-SS02-0-25	"	S	"	3	X	X	X					X			X	X		
8	VR-M-SS02-0-50	"	S	"	3	X	X	X					X			X	X		
9	TEMP SPIKE	13/3/14	S	1 SAK														Bleed	
10	TEMP BLANK	15/3/14	S	1 SAK														Bleed + TRH	
					<b>TOTAL</b>														

Environmental Division  
Sydney  
Work Order  
**ES1405527**



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cl Preserved; S = Sodium Hydroxide Preserved Plastic; AG = V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Sulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405673</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : JD <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 12  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 14-MAR-2014 <b>Issue Date</b> : 21-MAR-2014  <b>No. of samples received</b> : 12 <b>No. of samples analysed</b> : 12
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_C_SW06	VR_M_SW06	VR_M_SW04	VR_M_SW01	VR_M_SW03
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-001	ES1405673-002	ES1405673-003	ES1405673-004	ES1405673-005
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	----	3	3	<2	3
Arsenic	7440-38-2	0.5	µg/L	----	3.3	3.0	3.1	3.0
Barium	7440-39-3	1	µg/L	----	21	20	20	20
Beryllium	7440-41-7	0.1	µg/L	----	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	100	µg/L	----	3720	3770	3680	3740
Cadmium	7440-43-9	0.2	µg/L	----	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L	----	3.6	2.2	2.1	3.6
Cobalt	7440-48-4	0.2	µg/L	----	0.6	0.5	0.4	0.6
Copper	7440-50-8	1	µg/L	----	1	<1	2	<1
Lead	7439-92-1	0.2	µg/L	----	1.0	0.8	0.7	0.8
Manganese	7439-96-5	0.5	µg/L	----	47.8	46.0	37.4	63.1
Molybdenum	7439-98-7	0.1	µg/L	----	15.7	14.9	13.5	15.5
Nickel	7440-02-0	0.5	µg/L	----	1.4	1.1	1.1	1.4
Thallium	7440-28-0	0.1	µg/L	----	0.1	0.1	<0.1	0.1
Vanadium	7440-62-2	0.5	µg/L	----	14.8	12.0	8.8	12.9
Zinc	7440-66-6	5	µg/L	----	21	15	19	15
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	1.0	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L	2.4	----	----	----	----
Barium	7440-39-3	0.5	µg/L	92.7	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	0.1	----	----	----	----
Boron	7440-42-8	5	µg/L	715	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.9	----	----	----	----
Cobalt	7440-48-4	0.1	µg/L	2.9	----	----	----	----
Copper	7440-50-8	0.5	µg/L	2.2	----	----	----	----
Lead	7439-92-1	0.1	µg/L	1.0	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	231	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	4.0	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	3.4	----	----	----	----
Thallium	7440-28-0	0.02	µg/L	<0.02	----	----	----	----
Vanadium	7440-62-2	0.2	µg/L	2.0	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_C_SW06	VR_M_SW06	VR_M_SW04	VR_M_SW01	VR_M_SW03
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-001	ES1405673-002	ES1405673-003	ES1405673-004	ES1405673-005
<b>EG094T: Total metals in Fresh water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	1	µg/L	59	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_C_SW06	VR_M_SW06	VR_M_SW04	VR_M_SW01	VR_M_SW03
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-001	ES1405673-002	ES1405673-003	ES1405673-004	ES1405673-005
<b>EP080: BTEXN - Continued</b>								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	45.4	53.9	46.8	51.8	47.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW06	VR_M_SW06	VR_M_SW04	VR_M_SW01	VR_M_SW03
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
				ES1405673-001	ES1405673-002	ES1405673-003	ES1405673-004	ES1405673-005
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	83.2	87.0	80.0	86.6	81.2
2,4,6-Tribromophenol	118-79-6	0.1	%	109	105	98.0	107	96.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	77.1	64.8	67.4	67.6	74.2
Anthracene-d10	1719-06-8	0.1	%	74.7	74.4	71.5	75.9	71.5
4-Terphenyl-d14	1718-51-0	0.1	%	71.6	71.7	68.6	73.3	67.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	99.7	102	103	99.6
Toluene-D8	2037-26-5	0.1	%	87.7	91.2	91.8	85.5	86.6
4-Bromofluorobenzene	460-00-4	0.1	%	91.8	88.6	90.0	86.3	84.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	89.0	99.5	91.5	99.3	92.7
Anthracene-d10	1719-06-8	0.1	%	102	105	101	108	102
4-Terphenyl-d14	1718-51-0	0.1	%	96.4	95.1	94.3	101	95.2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_M_SW05	VR_C_SS04	D06_130314_JD	VR_C_SW05	R01_130314_JD
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-006	ES1405673-007	ES1405673-008	ES1405673-009	ES1405673-010
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	----	<0.001
Thallium	7440-28-0	0.001	mg/L	----	----	----	----	<0.001
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	----
Arsenic	7440-38-2	0.5	µg/L	2.8	2.3	1.8	1.7	----
Barium	7440-39-3	1	µg/L	20	23	51	55	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Boron	7440-42-8	100	µg/L	3770	3590	3020	2820	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	----
Chromium	7440-47-3	0.5	µg/L	0.9	<0.5	<0.5	1.4	----
Cobalt	7440-48-4	0.2	µg/L	0.6	0.3	0.6	0.8	----
Copper	7440-50-8	1	µg/L	<1	<1	<1	<1	----
Lead	7439-92-1	0.2	µg/L	0.6	0.3	0.3	0.3	----
Manganese	7439-96-5	0.5	µg/L	67.6	68.3	128	144	----
Molybdenum	7439-98-7	0.1	µg/L	14.4	11.8	9.1	8.3	----
Nickel	7440-02-0	0.5	µg/L	1.0	0.8	1.0	1.6	----
Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Vanadium	7440-62-2	0.5	µg/L	8.4	4.4	1.2	1.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_M_SW05	VR_C_SS04	D06_130314_JD	VR_C_SW05	R01_130314_JD
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-006	ES1405673-007	ES1405673-008	ES1405673-009	ES1405673-010
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	5	µg/L	13	6	19	33	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	----	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	----	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	----	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	----	----	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	----	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	----	----	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	----	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	----	----	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	----	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	----	----	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	----	----	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	----	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	----	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	----	----	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	----	----	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	----	<0.5





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_M_SW05	VR_C_SS04	D06_130314_JD	VR_C_SW05	R01_130314_JD
Client sampling date / time				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-006	ES1405673-007	ES1405673-008	ES1405673-009	ES1405673-010
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VR_M_SW05	VR_C_SS04	D06_130314_JD	VR_C_SW05	R01_130314_JD
				13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00	13-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1405673-006	ES1405673-007	ES1405673-008	ES1405673-009	ES1405673-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	55.9	61.4	46.8	48.3	34.4
2-Chlorophenol-D4	93951-73-6	0.1	%	87.8	94.6	84.5	86.3	68.5
2,4,6-Tribromophenol	118-79-6	0.1	%	108	106	108	110	45.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.9	87.9	83.1	81.6	72.6
Anthracene-d10	1719-06-8	0.1	%	76.9	81.2	75.2	75.0	65.4
4-Terphenyl-d14	1718-51-0	0.1	%	74.6	78.6	72.2	72.2	70.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	102	105	102	106
Toluene-D8	2037-26-5	0.1	%	85.2	82.9	89.2	87.6	88.8
4-Bromofluorobenzene	460-00-4	0.1	%	87.8	84.5	88.1	86.2	89.9
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	104	79.4	91.2	97.6	----
Anthracene-d10	1719-06-8	0.1	%	111	90.7	103	108	----
4-Terphenyl-d14	1718-51-0	0.1	%	104	86.0	96.3	104	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TB (2)	TS (3)	---	---	---
				13-MAR-2014 15:00	13-MAR-2014 15:00	---	---	---
				ES1405673-011	ES1405673-012	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	14	---	---	---
Toluene	108-88-3	2	µg/L	<2	14	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	15	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	14	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	16	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	30	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	73	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	19	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	101	---	---	---
Toluene-D8	2037-26-5	0.1	%	85.7	88.2	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	87.0	88.5	---	---	---



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405673</b>	<b>Page</b>	: 1 of 13
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	<b>: GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 14-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 21-MAR-2014
<b>Sampler</b>	: JD	<b>No. of samples received</b>	: 12
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 12
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Pabi Subba  
Shobhna Chandra

#### Position

Senior Organic Chemist  
Metals Coordinator

#### Accreditation Category

Sydney Organics  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3348908)</b>									
ES1405663-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.138	0.138	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.148	0.146	1.1	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	0.002	0.001	63.8	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.023	0.028	19.6	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	0.23	0.25	5.4	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3343927)</b>									
ES1405543-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405673-007	VR_C_SS04	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3349141)</b>									
ES1405673-002	VR_M_SW06	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	15.7	15.1	3.4	0% - 20%
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	0.1	0.1	0.0	No Limit
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	0.6	0.7	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	1.0	0.9	12.7	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	3.3	3.2	4.3	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	3.6	3.8	6.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	47.8	48.3	1.0	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	1.4	1.5	8.8	No Limit
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	14.8	15.0	1.1	0% - 20%
		EG093A-T: Barium	7440-39-3	1	µg/L	21	20	0.0	0% - 50%
		EG093A-T: Copper	7440-50-8	1	µg/L	1	1	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3720	3800	2.3	0% - 20%
		EG093A-T: Zinc	7440-66-6	5	µg/L	21	21	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3349142)</b>									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3349142) - continued</b>										
ES1405673-002	VR_M_SW06	EG093B-T: Selenium	7782-49-2	2	µg/L	3	3	0.0	No Limit	
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3349612)</b>										
ES1405673-001	VR_C_SW06	EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit	
		EG094A-T: Beryllium	7440-41-7	0.1	µg/L	0.1	0.1	0.0	No Limit	
		EG094A-T: Cobalt	7440-48-4	0.1	µg/L	2.9	2.9	0.0	0% - 20%	
		EG094A-T: Lead	7439-92-1	0.1	µg/L	1.0	1.2	11.4	0% - 50%	
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	4.0	4.0	0.0	0% - 20%	
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	2.4	2.4	0.0	0% - 50%	
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	0.9	0.8	0.0	No Limit	
		EG094A-T: Vanadium	7440-62-2	0.2	µg/L	2.0	2.0	0.0	No Limit	
		EG094A-T: Barium	7440-39-3	0.5	µg/L	92.7	92.9	0.2	0% - 20%	
		EG094A-T: Copper	7440-50-8	0.5	µg/L	2.2	2.3	6.0	No Limit	
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	231	227	1.6	0% - 20%	
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	3.4	3.5	0.0	No Limit	
EG094A-T: Zinc	7440-66-6	1	µg/L	59	60	1.9	0% - 20%			
EG094A-T: Boron	7440-42-8	5	µg/L	715	717	0.4	0% - 20%			
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3349613)</b>										
ES1405673-001	VR_C_SW06	EG094B-T: Selenium	7782-49-2	0.2	µg/L	1.0	0.9	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	80	70	0.0	No Limit	
ES1405673-003	VR_M_SW04	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	100	90	0.0	No Limit	
ES1405673-003	VR_M_SW04	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	4	4	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	15	15	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	5	5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	3	3	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1405673-003	VR_M_SW04	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	



Page : 5 of 13  
Work Order : ES1405673  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

*Laboratory Duplicate (DUP) Report*

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
-----------------------------	-------------------------	-------------------------	-------------------	------------	-------------	------------------------	-------------------------	----------------	----------------------------



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348908)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.9	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.6	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.3	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.2	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.9	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.6	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	110	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	102	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.7	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.6	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	101	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343927)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.1	77	115	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3349141)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	110	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	115	82	128	
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	107	79	123	
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	109	80	118	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	112	86	126	
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	114	90	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	112	84	128	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	120	87	125	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	113	86	126	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	96.1	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	110	85	125	
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	112	81	127	
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	98.6	84	126	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	97.2	82	128	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3349142)</b>								
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	97.3	75	133
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3349612)</b>								
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	95.9	81	125
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	106	81	117
EG094A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	102	71	127
EG094A-T: Boron	7440-42-8	5	µg/L	<5	10 µg/L	128	70	130
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	99.2	77	111
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	103	78	126
EG094A-T: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	98.2	78	126
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	100	78	126
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	115	75	123
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	105	81	121
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	98.7	77	127
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	97.8	82	124
EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	96.5	71	125
EG094A-T: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	103	82	118
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	93.1	75	129
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3349613)</b>								
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	89.5	78	124
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342261)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	55.9	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	102	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	85.2	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	98.6	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	92.6	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	91.5	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	96.3	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	95.6	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	92.0	63	119
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342261) - continued</b>									
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	83.5	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	84.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	56.9	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3342311)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	53.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	64.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	84.5	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	79.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	# 61.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	80.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.5	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	75.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	79.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	86.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	41.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342311)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	78.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	77.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342311) - continued</b>									
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	74.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	72.2	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	77.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	75.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	74.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.4	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	74.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	72.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	74.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342260)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	109	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	79.6	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3342310)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	90.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.7	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346894)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342260)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.7	73.9	138	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342260) - continued</b>								
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	78.5	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3342310)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.5	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	103	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346894)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.7	75	127
<b>EP080: BTEXN (QCLot: 3346894)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	117	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	109	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	103	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	114	70	124
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342107)</b>								
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	85.5	60	120
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	84.9	59	123
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	112	12.3	156
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	91.9	64	122
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	89.6	62	124
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	96.2	66	124
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	96.6	64	130
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	94.8	64	126
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	99.9	62	126
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	98.9	62	126
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	97.1	56	126
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	93.6	63	127
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	99.3	64	128
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	102	35	133
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	94.2	58	128
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	90.5	65	127
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	89.4	64	124
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	95.2	57	127
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	118	53.6	131
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	67.0	60	124
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	96.7	64	124



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3342107) - continued</b>								
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	97.4	65	125
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	89.2	66	128

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348908)</b>							
ES1405663-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	113	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	97.6	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	93.0	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.4	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	104	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	104	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	91.6	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	81.0	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	105	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343927)</b>							
ES1405543-005	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.0	70	130
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3349141)</b>							
EM1402032-001	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	118	70	130
		EG093A-T: Barium	7440-39-3	50 µg/L	94.6	70	130
		EG093A-T: Beryllium	7440-41-7	50 µg/L	114	70	130
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	121	70	130
		EG093A-T: Chromium	7440-47-3	50 µg/L	104	70	130
		EG093A-T: Cobalt	7440-48-4	50 µg/L	120	70	130
		EG093A-T: Copper	7440-50-8	50 µg/L	125	70	130
		EG093A-T: Lead	7439-92-1	50 µg/L	121	70	130
		EG093A-T: Manganese	7439-96-5	50 µg/L	119	70	130
		EG093A-T: Nickel	7440-02-0	50 µg/L	125	70	130
		EG093A-T: Vanadium	7440-62-2	50 µg/L	108	70	130
		EG093A-T: Zinc	7440-66-6	50 µg/L	121	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346894)</b>								
ES1405512-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346894)</b>								
ES1405512-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	109	70	130	
<b>EP080: BTEXN (QCLot: 3346894)</b>								
ES1405512-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	70	130	
		EP080: Toluene	108-88-3	25 µg/L	118	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	113	70	130	
	EP080: Naphthalene	91-20-3		25 µg/L	114	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3343927)</b>										
ES1405543-005	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	95.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	109	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3346894)</b>										
ES1405512-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	113	----	70	130	----	----
	EP080: Naphthalene	91-20-3		25 µg/L	114	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348908)</b>										
ES1405663-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	113	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	97.6	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	93.0	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.4	----	70	130	----	----





Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3348908) - continued</b>										
ES1405663-002	Anonymous	EG020A-T: Chromium	7440-47-3	1 mg/L	104	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	104	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	91.6	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	81.0	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	105	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	----	70	130	----	----
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3349141)</b>										
EM1402032-001	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	118	----	70	130	----	----
		EG093A-T: Barium	7440-39-3	50 µg/L	94.6	----	70	130	----	----
		EG093A-T: Beryllium	7440-41-7	50 µg/L	114	----	70	130	----	----
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	121	----	70	130	----	----
		EG093A-T: Chromium	7440-47-3	50 µg/L	104	----	70	130	----	----
		EG093A-T: Cobalt	7440-48-4	50 µg/L	120	----	70	130	----	----
		EG093A-T: Copper	7440-50-8	50 µg/L	125	----	70	130	----	----
		EG093A-T: Lead	7439-92-1	50 µg/L	121	----	70	130	----	----
		EG093A-T: Manganese	7439-96-5	50 µg/L	119	----	70	130	----	----
		EG093A-T: Nickel	7440-02-0	50 µg/L	125	----	70	130	----	----
		EG093A-T: Vanadium	7440-62-2	50 µg/L	108	----	70	130	----	----
		EG093A-T: Zinc	7440-66-6	50 µg/L	121	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405673</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 14-MAR-2014
C-O-C number	: ----	Issue Date	: 21-MAR-2014
Sampler	: JD	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_130314_JD	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VR_C_SW06, VR_M_SW06, VR_M_SW04, VR_M_SW01, VR_M_SW03, VR_M_SW05, VR_C_SS04, D06_130314_JD, VR_C_SW05	13-MAR-2014	----	----	----	18-MAR-2014	10-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_130314_JD	13-MAR-2014	----	----	----	18-MAR-2014	10-APR-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VR_M_SW06, VR_M_SW04, VR_M_SW01, VR_M_SW03, VR_M_SW05, VR_C_SS04, D06_130314_JD, VR_C_SW05	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VR_M_SW06, VR_M_SW04, VR_M_SW01, VR_M_SW03, VR_M_SW05, VR_C_SS04, D06_130314_JD, VR_C_SW05	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) VR_C_SW06	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) VR_C_SW06	13-MAR-2014	20-MAR-2014	09-SEP-2014	✓	20-MAR-2014	09-SEP-2014	✓



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> R01_130314_JD	13-MAR-2014	19-MAR-2014	20-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VR_C_SW06, VR_M_SW04, VR_M_SW03, VR_C_SS04, VR_C_SW05 VR_M_SW06, VR_M_SW01, VR_M_SW05, D06_130314_JD,	13-MAR-2014	20-MAR-2014	20-MAR-2014	✓	20-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_130314_JD	13-MAR-2014	19-MAR-2014	20-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VR_C_SW06, VR_M_SW04, VR_M_SW03, VR_C_SS04, VR_C_SW05 VR_M_SW06, VR_M_SW01, VR_M_SW05, D06_130314_JD,	13-MAR-2014	20-MAR-2014	20-MAR-2014	✓	20-MAR-2014	29-APR-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> R01_130314_JD	13-MAR-2014	19-MAR-2014	20-MAR-2014	✓	19-MAR-2014	28-APR-2014	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VR_C_SW06, VR_M_SW04, VR_M_SW03, VR_C_SS04, VR_C_SW05, TB (2), VR_M_SW06, VR_M_SW01, VR_M_SW05, D06_130314_JD, R01_130314_JD, TS (3)	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	20-MAR-2014	27-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VR_C_SW06, VR_M_SW04, VR_M_SW03, VR_C_SS04, VR_C_SW05, TB (2), VR_M_SW06, VR_M_SW01, VR_M_SW05, D06_130314_JD, R01_130314_JD,	13-MAR-2014	20-MAR-2014	27-MAR-2014	✓	20-MAR-2014	27-MAR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP132)</b>								
VR_C_SW06, VR_M_SW04, VR_M_SW03, VR_C_SS04, VR_C_SW05	VR_M_SW06, VR_M_SW01, VR_M_SW05, D06_130314_JD,	13-MAR-2014	18-MAR-2014	20-MAR-2014	✓	19-MAR-2014	27-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	10	10.0	9.5	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	31	6.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	10	10.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	27	7.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	31	6.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	10	10.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	27	7.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	10	10.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	3992514-007	----	2-Nitrophenol	88-75-5	61.6 %	62.7-117%	Recovery less than lower control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-001	VR_C_SW06	Phenol-d6	13127-88-3	45.4 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-003	VR_M_SW04	Phenol-d6	13127-88-3	46.8 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-005	VR_M_SW03	Phenol-d6	13127-88-3	47.0 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-007	VR_C_SS04	Phenol-d6	13127-88-3	61.4 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-009	VR_C_SW05	Phenol-d6	13127-88-3	48.3 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-002	VR_M_SW06	Phenol-d6	13127-88-3	53.9 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-004	VR_M_SW01	Phenol-d6	13127-88-3	51.8 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-006	VR_M_SW05	Phenol-d6	13127-88-3	55.9 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-008	D06_130314_JD	Phenol-d6	13127-88-3	46.8 %	10.0-44 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1405673-007	VR_C_SS04	2-Chlorophenol-D4	93951-73-6	94.6 %	14-94 %	Recovery greater than upper data quality objective

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.



### ***Outliers : Frequency of Quality Control Samples***

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405673</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: JD</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 14-MAR-2014</b>	<b>Issue Date</b>	<b>: 15-MAR-2014 11:10</b>
<b>Client Requested Due Date</b>	<b>: 21-MAR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 21-MAR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.1°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 12</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 12</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_130314\_JD received 100mL amber glass , therefore PAH standard LOR analysis**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total metals in Saline Water Suite A	WATER - EG093B-T Total Metals in Saline Water -Suite B	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - W-03T 15 Metals (Total) (NEPM)
ES1405673-001	13-MAR-2014 15:00	VR_C_SW06		✓	✓	✓	✓		✓	
ES1405673-002	13-MAR-2014 15:00	VR_M_SW06		✓	✓	✓	✓		✓	
ES1405673-003	13-MAR-2014 15:00	VR_M_SW04		✓	✓	✓	✓		✓	
ES1405673-004	13-MAR-2014 15:00	VR_M_SW01		✓	✓	✓	✓		✓	
ES1405673-005	13-MAR-2014 15:00	VR_M_SW03		✓	✓	✓	✓		✓	
ES1405673-006	13-MAR-2014 15:00	VR_M_SW05		✓	✓	✓	✓		✓	
ES1405673-007	13-MAR-2014 15:00	VR_C_SS04		✓	✓	✓	✓		✓	
ES1405673-008	13-MAR-2014 15:00	D06_130314_JD		✓	✓	✓	✓		✓	
ES1405673-009	13-MAR-2014 15:00	VR_C_SW05		✓	✓	✓	✓		✓	
ES1405673-010	13-MAR-2014 15:00	R01_130314_JD	✓							✓
ES1405673-012	13-MAR-2014 15:00	TS (3)						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH/C6 - C9/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405673-001	13-MAR-2014 15:00	VR_C_SW06	✓		
ES1405673-002	13-MAR-2014 15:00	VR_M_SW06	✓		
ES1405673-003	13-MAR-2014 15:00	VR_M_SW04	✓		
ES1405673-004	13-MAR-2014 15:00	VR_M_SW01	✓		
ES1405673-005	13-MAR-2014 15:00	VR_M_SW03	✓		
ES1405673-006	13-MAR-2014 15:00	VR_M_SW05	✓		
ES1405673-007	13-MAR-2014 15:00	VR_C_SS04	✓		
ES1405673-008	13-MAR-2014 15:00	D06_130314_JD	✓		
ES1405673-009	13-MAR-2014 15:00	VR_C_SW05	✓		
ES1405673-010	13-MAR-2014 15:00	R01_130314_JD			✓
ES1405673-011	13-MAR-2014 15:00	TB (2)		✓	



## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

#### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1405673</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 3</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: JD</b>		

#### Dates

Date Samples Received	: 14-MAR-2014	Issue Date	: 15-MAR-2014 13:05
Client Requested Due Date	: 21-MAR-2014	Scheduled Reporting Date	: <b>21-MAR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.1°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 12
Security Seal	: Intact.	No. of samples analysed	: 12

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample R01\_130314\_JD received 100mL amber glass , therefore PAH standard LOR conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including)	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T Total Metals in Saline Water - Suite B by	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-03T 15 Metals (Total) (NEPM)
ES1405673-001	13-MAR-2014 15:00	VR_C_SW06		✓	✓	✓	✓		✓	
ES1405673-002	13-MAR-2014 15:00	VR_M_SW06		✓	✓	✓	✓		✓	
ES1405673-003	13-MAR-2014 15:00	VR_M_SW04		✓	✓	✓	✓		✓	
ES1405673-004	13-MAR-2014 15:00	VR_M_SW01		✓	✓	✓	✓		✓	
ES1405673-005	13-MAR-2014 15:00	VR_M_SW03		✓	✓	✓	✓		✓	
ES1405673-006	13-MAR-2014 15:00	VR_M_SW05		✓	✓	✓	✓		✓	
ES1405673-007	13-MAR-2014 15:00	VR_C_SS04		✓	✓	✓	✓		✓	
ES1405673-008	13-MAR-2014 15:00	D06_130314_JD		✓	✓	✓	✓		✓	
ES1405673-009	13-MAR-2014 15:00	VR_C_SW05		✓	✓	✓	✓		✓	
ES1405673-010	13-MAR-2014 15:00	R01_130314_JD	✓							✓
ES1405673-012	13-MAR-2014 15:00	TS (3)						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1405673-001	13-MAR-2014 15:00	VR_C_SW06	✓		
ES1405673-002	13-MAR-2014 15:00	VR_M_SW06	✓		
ES1405673-003	13-MAR-2014 15:00	VR_M_SW04	✓		
ES1405673-004	13-MAR-2014 15:00	VR_M_SW01	✓		
ES1405673-005	13-MAR-2014 15:00	VR_M_SW03	✓		
ES1405673-006	13-MAR-2014 15:00	VR_M_SW05	✓		
ES1405673-007	13-MAR-2014 15:00	VR_C_SS04	✓		
ES1405673-008	13-MAR-2014 15:00	D06_130314_JD	✓		
ES1405673-009	13-MAR-2014 15:00	VR_C_SW05	✓		
ES1405673-010	13-MAR-2014 15:00	R01_130314_JD			✓
ES1405673-011	13-MAR-2014 15:00	TB (2)		✓	



## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

#### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

#### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------





**CHAIN OF CUSTODY**

ALS Laboratory  
Please tick →

DADELIDE 21 Birnie Road Porirua SA 5095  
Ph: 08 8355 0800; E: aledela@alsglobal.com  
DESBANK 92 Shead Street Station QLD 4069  
Ph: 07 5033 7222; E: jay@alsglobal.com  
DGLAUSTONE 46 Calderbridge Drive Clifton QLD 4680  
Ph: 07 7471 5600; E: jgladstone@alsglobal.com

DIACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4544 0177; E: mackey@alsglobal.com  
DINELBORNE 2-4 Westall Road Springvale VIC 3171  
Ph: 03 8549 5000; E: sampas.melbourne@alsglobal.com  
DINURGEE 27 Sydney Road Ludgus NSW 2850  
Ph: 02 6372 6756; E: nurgee.nm@alsglobal.com

DINEWCASTLE 5 Rise Gum Road Warahook NSW 2304  
Ph: 02 4998 9433; E: samples.newcastle@alsglobal.com  
DINOWRA 1113 Geary Place North Nowra NSW 2541  
Ph: 02 4423 2063; E: nowra@alsglobal.com  
DIPRESTH 10 Hoad Way Newcastle NSW 2060  
Ph: 08 9249 7659; E: samples.presth@alsglobal.com

DISYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555; E: samples.sydney@alsglobal.com  
DITROWNSVILLE 14-16 Dasma Court Bello QLD 4618  
Ph: 07 4788 0000; E: townsville.environmental@alsglobal.com  
DIWOLLONGONG 69 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 3125; E: jpoller@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**PROJECT MANAGER:** JOHN EWING  
**SAMPLER:** JD  
**COC emailed to ALS?** ( YES / NO )  
**Email Reports to** (will default to PM if no other addresses are listed): symphony.dellanor@erm.com  
**Email Invoice to** (will default to PM if no other addresses are listed): symphony.dellanor@erm.com  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0430724144  
**EDD FORMAT** (or default):  
**RECEIVED BY:** J. Devereux  
**RELINQUISHED BY:** Kavi  
**DATE/TIME:** 13.3.14 1830  
**DATE/TIME:** 13.3.14 1830  
**DATE/TIME:** #13

**FOR LABORATORY USE ONLY (Print)**

**Standard TAT (List due date):**  Standard TAT (List due date);  Non Standard or urgent TAT (List due date)

**GLASSY SEAL (Print):**  Yes  No  N/A

**FRUIT/VEGETABLES (Print):**  Yes  No  N/A

**Random Sample Temperature on Receipt:**

**Other comment:**

**TURNAROUND REQUIREMENTS:** Standard TAT (List due date):  
 (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)

**AL\$ QUOTE NO.:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to codes below)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required).													Additional Information
						8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals				
1	VR-C-SW06	13.3.14	w	2 amber 22x plastic	5	X	X	X	X	X	X	X	X	X	X	X	X	Environmental Division Sydney Work Order <b>ES1405673</b>  Telephone : +61-2-8784 8555  Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.  Step + TR Only BTEP only	
2	VR-M-SW06	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
3	VR-M-SW04	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
4	VR-M-SW01	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
5	VR-M-SW03	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
6	VR-M-SW05	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
7	VR-C-SS04	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
8	DOB-130314-JD	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
9	VR-C-SW05	"	w	"	5	X	X	X	X	X	X	X	X	X	X	X			
10	201-130314-JD	"	w	2 vials 14 amber 13 plastic	4	X	X	X	X	X	X	X	X	X	X	X			
11	TB (2)	"	w	2 vials	2	X	X	X	X	X	X	X	X	X	X	X			
12	TS (3)	"	w	"	2	X	X	X	X	X	X	X	X	X	X	X			
<b>TOTAL</b>																			

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Nitric Preserved SH; S = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1405741</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : SYMPHONY DELTANORTH <b>Address</b> : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009  <b>E-mail</b> : symphony.deltanorth@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : JD <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 6  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 17-MAR-2014 <b>Issue Date</b> : 27-MAR-2014  <b>No. of samples received</b> : 2 <b>No. of samples analysed</b> : 2
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW07	D03_140314_JD	----	----	----
				14-MAR-2014 15:00	14-MAR-2014 15:00	----	----	----
				ES1405741-001	ES1405741-002	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	0.9	1.0	----	----	----
Arsenic	7440-38-2	0.2	µg/L	2.8	3.0	----	----	----
Barium	7440-39-3	0.5	µg/L	58.2	58.8	----	----	----
Beryllium	7440-41-7	0.1	µg/L	0.2	0.2	----	----	----
Boron	7440-42-8	5	µg/L	284	284	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.9	0.6	----	----	----
Cobalt	7440-48-4	0.1	µg/L	1.8	1.8	----	----	----
Copper	7440-50-8	0.5	µg/L	2.7	3.0	----	----	----
Lead	7439-92-1	0.1	µg/L	1.1	1.3	----	----	----
Manganese	7439-96-5	0.5	µg/L	144	141	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	2.4	2.4	----	----	----
Nickel	7440-02-0	0.5	µg/L	3.8	3.7	----	----	----
Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	----	----	----
Vanadium	7440-62-2	0.2	µg/L	2.1	2.1	----	----	----
Zinc	7440-66-6	1	µg/L	65	67	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW07	D03_140314_JD	---	---	---
				14-MAR-2014 15:00	14-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1405741-001	ES1405741-002	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	---	---	---
Toluene	108-88-3	2	µg/L	<2	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	<1	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	---	---	---
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	---	---	---
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	---	---	---
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	---	---	---
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	---	---	---
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	---	---	---
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	---	---	---
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	---	---	---
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	---	---	---
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	---	---	---
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VR_C_SW07	D03_140314_JD	---	---	---
				14-MAR-2014 15:00	14-MAR-2014 15:00	---	---	---
				ES1405741-001	ES1405741-002	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	---	---	---
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	---	---	---
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	---	---	---
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	---	---	---
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	---	---	---
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	---	---	---
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	---	---	---
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	---	---	---
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	---	---	---
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	---	---	---
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	---	---	---
^ Sum of PAHs	---	0.05	µg/L	<0.05	<0.05	---	---	---
^ Benzo(a)pyrene TEQ (zero)	---	0.05	µg/L	<0.05	<0.05	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	38.0	39.1	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	76.6	77.8	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	93.7	96.0	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.7	67.4	---	---	---
Anthracene-d10	1719-06-8	0.1	%	76.4	78.2	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	72.2	73.7	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.6	83.2	---	---	---
Toluene-D8	2037-26-5	0.1	%	106	100	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	84.8	84.7	---	---	---
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	106	102	---	---	---
Anthracene-d10	1719-06-8	0.1	%	115	105	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	114	106	---	---	---



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1405741</b>	<b>Page</b>	<b>: 1 of 9</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: SYMPHONY DELTANORTH</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: symphony.deltanorth@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 17-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 27-MAR-2014</b>
<b>Sampler</b>	<b>: JD</b>	<b>No. of samples received</b>	<b>: 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 2</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3347392)</b>									
EM1402153-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1405660-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3354205)</b>									
ES1405741-001	VR_C_SW07	EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Beryllium	7440-41-7	0.1	µg/L	0.2	0.2	0.0	No Limit
		EG094A-T: Cobalt	7440-48-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
		EG094A-T: Lead	7439-92-1	0.1	µg/L	1.1	1.4	21.4	0% - 50%
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	2.4	2.4	0.0	0% - 20%
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	2.8	2.8	0.0	0% - 50%
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	0.9	0.5	49.9	No Limit
		EG094A-T: Vanadium	7440-62-2	0.2	µg/L	2.1	2.1	0.0	0% - 50%
		EG094A-T: Barium	7440-39-3	0.5	µg/L	58.2	58.5	0.6	0% - 20%
		EG094A-T: Copper	7440-50-8	0.5	µg/L	2.7	2.7	0.0	No Limit
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	144	145	0.6	0% - 20%
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	3.8	3.7	2.9	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	65	64	0.0	0% - 20%
EG094A-T: Boron	7440-42-8	5	µg/L	284	303	6.7	0% - 20%		
ES1405851-003	Anonymous	EG094A-T: Thallium	7440-28-0	0.02	µg/L	0.49	0.50	0.0	0% - 20%
		EG094A-T: Cadmium	7440-43-9	0.05	µg/L	0.43	0.46	6.4	No Limit
		EG094A-T: Beryllium	7440-41-7	0.1	µg/L	1.6	1.6	0.0	0% - 50%
		EG094A-T: Cobalt	7440-48-4	0.1	µg/L	92.8	93.0	0.2	0% - 20%
		EG094A-T: Lead	7439-92-1	0.1	µg/L	6.8	6.6	2.6	0% - 20%
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	16.6	16.4	1.3	0% - 20%
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	4.5	3.8	17.9	0% - 20%
		EG094A-T: Vanadium	7440-62-2	0.2	µg/L	9.0	8.2	8.4	0% - 20%
		EG094A-T: Barium	7440-39-3	0.5	µg/L	86.6	84.2	2.9	0% - 20%
		EG094A-T: Copper	7440-50-8	0.5	µg/L	16.2	16.2	0.0	0% - 20%
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	2790	2740	1.8	0% - 20%
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	118	119	1.0	0% - 20%
		EG094A-T: Zinc	7440-66-6	1	µg/L	313	313	0.0	0% - 20%
EG094A-T: Boron	7440-42-8	5	µg/L	137	136	1.0	0% - 20%		
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3354206)</b>									
ES1405741-001	VR_C_SW07	EG094B-T: Selenium	7782-49-2	0.2	µg/L	0.9	1.0	0.0	No Limit
ES1405851-003	Anonymous	EG094B-T: Selenium	7782-49-2	0.2	µg/L	9.2	9.2	0.0	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3350294)</b>									
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1405743-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3350294)</b>									
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1405743-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3350294)</b>									
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1405743-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.9	77	115	
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3354205)</b>									
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	104	81	125	
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	102	81	117	
EG094A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	100	71	127	
EG094A-T: Boron	7440-42-8	5	µg/L	<5	100 µg/L	102	70	130	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	93.2	77	111	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	108	78	126	
EG094A-T: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	108	78	126	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	99.8	78	126	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	93.6	75	123	
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	102	81	121	
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	97.7	77	127	
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	106	82	124	
EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	99.0	71	125	
EG094A-T: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	103	82	118	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	96.0	75	129	
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3354206)</b>									
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	97.3	78	124	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3355244)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	54.8	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	79.6	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	79.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	82.7	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	77.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	76.1	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	81.8	59.3	122	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM): Phenolic Compounds (QCLot: 3355244) - continued</b>									
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	80.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	81.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	80.2	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	83.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	57.1	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.6	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3355243)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	108	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	114	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	84.9	62	120	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3355243)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	119	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	81.1	67	127	
<b>EP080: BTEXN (QCLot: 3350294)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	120	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	120	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	120	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	116	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.2	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345459)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	83.2	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	89.8	59	123	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	112	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	93.9	64	122	
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	89.5	62	124	
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	96.0	66	124	
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	96.0	64	130	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3345459) - continued</b>									
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	91.2	64	126	
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	87.6	62	126	
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	98.8	62	126	
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	85.0	56	126	
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	104	63	127	
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	96.0	64	128	
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	71.3	35	133	
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	74.8	58	128	
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	94.9	65	127	
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	92.1	64	124	
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	79.5	57	127	
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	74.5	53.6	131	
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	65.0	60	124	
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	97.0	64	124	
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	97.6	65	125	
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	93.9	66	128	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>								
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	70	130	
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3354205)</b>								
ES1405741-002	D03_140314_JD	EG094A-T: Arsenic	7440-38-2	50 µg/L	125	70	130	
		EG094A-T: Barium	7440-39-3	50 µg/L	116	70	130	
		EG094A-T: Beryllium	7440-41-7	50 µg/L	103	70	130	
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	104	70	130	
		EG094A-T: Chromium	7440-47-3	50 µg/L	107	70	130	
		EG094A-T: Cobalt	7440-48-4	50 µg/L	119	70	130	
		EG094A-T: Copper	7440-50-8	50 µg/L	128	70	130	
		EG094A-T: Lead	7439-92-1	50 µg/L	101	70	130	
		EG094A-T: Manganese	7439-96-5	50 µg/L	101	70	130	
		EG094A-T: Nickel	7440-02-0	50 µg/L	113	70	130	
		EG094A-T: Vanadium	7440-62-2	50 µg/L	109	70	130	
		EG094A-T: Zinc	7440-66-6	50 µg/L	107	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	70	130	
<b>EP080: BTEXN (QCLot: 3350294)</b>								
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	70	130	
		EP080: Toluene	108-88-3	25 µg/L	79.2	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	77.1	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	89.0	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3347392)</b>										
EM1402153-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	75.5	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3350294)</b>										
ES1405648-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	79.2	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	78.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	77.1	----	70	130	----	----
	EP080: Naphthalene	91-20-3	25 µg/L	89.0	----	70	130	----	----	
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3354205)</b>										
ES1405741-002	D03_140314_JD	EG094A-T: Arsenic	7440-38-2	50 µg/L	125	----	70	130	----	----
		EG094A-T: Barium	7440-39-3	50 µg/L	116	----	70	130	----	----
		EG094A-T: Beryllium	7440-41-7	50 µg/L	103	----	70	130	----	----
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	104	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
<b>EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3354205) - continued</b>										
ES1405741-002	D03_140314_JD	EG094A-T: Chromium	7440-47-3	50 µg/L	107	----	70	130	----	----
		EG094A-T: Cobalt	7440-48-4	50 µg/L	119	----	70	130	----	----
		EG094A-T: Copper	7440-50-8	50 µg/L	128	----	70	130	----	----
		EG094A-T: Lead	7439-92-1	50 µg/L	101	----	70	130	----	----
		EG094A-T: Manganese	7439-96-5	50 µg/L	101	----	70	130	----	----
		EG094A-T: Nickel	7440-02-0	50 µg/L	113	----	70	130	----	----
		EG094A-T: Vanadium	7440-62-2	50 µg/L	109	----	70	130	----	----
		EG094A-T: Zinc	7440-66-6	50 µg/L	107	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1405741</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTANORTH	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltanorth@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 17-MAR-2014
C-O-C number	: ----	Issue Date	: 27-MAR-2014
Sampler	: JD	No. of samples received	: 2
Order number	: 0237747	No. of samples analysed	: 2
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VR_C_SW07, D03_140314_JD	14-MAR-2014	----	----	----	19-MAR-2014	11-APR-2014	✓
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) VR_C_SW07, D03_140314_JD	14-MAR-2014	24-MAR-2014	10-SEP-2014	✓	24-MAR-2014	10-SEP-2014	✓
<b>EG094T: Total metals in Fresh water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) VR_C_SW07, D03_140314_JD	14-MAR-2014	24-MAR-2014	10-SEP-2014	✓	24-MAR-2014	10-SEP-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) VR_C_SW07, D03_140314_JD	14-MAR-2014	21-MAR-2014	21-MAR-2014	✓	26-MAR-2014	03-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) VR_C_SW07, D03_140314_JD	14-MAR-2014	21-MAR-2014	21-MAR-2014	✓	26-MAR-2014	03-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) VR_C_SW07, D03_140314_JD	14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber VOC Vial - Sulfuric Acid (EP080) VR_C_SW07, D03_140314_JD	14-MAR-2014	22-MAR-2014	28-MAR-2014	✓	22-MAR-2014	28-MAR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP132) VR_C_SW07, D03_140314_JD	14-MAR-2014	20-MAR-2014	21-MAR-2014	✓	21-MAR-2014	29-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	7	14.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

Page : 5 of 6  
Work Order : ES1405741  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT POWER STATION



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405741**

<p><b>Client :</b> ENVIRO RESOURCES MANAGEMENT</p> <p><b>Contact :</b> SYMPHONY DELTANORTH</p> <p><b>Address :</b> GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</p> <p><b>E-mail :</b> symphony.deltanorth@erm.com</p> <p><b>Telephone :</b> +61 02 8584 8888</p> <p><b>Facsimile :</b> +61 02 8584 8800</p> <p><b>Project :</b> VALES POINT POWER STATION</p> <p><b>Order number :</b> 0237747</p> <p><b>C-O-C number :</b> ----</p> <p><b>Site :</b> ----</p> <p><b>Sampler :</b> JD</p>	<p><b>Laboratory :</b> Environmental Division Sydney</p> <p><b>Contact :</b> Barbara Hanna</p> <p><b>Address :</b> 277-289 Woodpark Road Smithfield NSW Australia 2164</p> <p><b>E-mail :</b> Barbara.Hanna@alsglobal.com</p> <p><b>Telephone :</b> +61 2 8784 8555</p> <p><b>Facsimile :</b> +61 2 8784 8555</p> <p><b>Page :</b> 1 of 2</p> <p><b>Quote number :</b> ES2014ENVRES0385 (SY/050/14 V3)</p> <p><b>QC Level :</b> NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
---	--

#### Dates

<p><b>Date Samples Received :</b> 17-MAR-2014</p> <p><b>Client Requested Due Date :</b> 27-MAR-2014</p>	<p><b>Issue Date :</b> 18-MAR-2014 09:25</p> <p><b>Scheduled Reporting Date :</b> <b>27-MAR-2014</b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery :</b> Carrier</p> <p><b>No. of coolers/boxes :</b> 1 HARD</p> <p><b>Security Seal :</b> Intact.</p>	<p><b>Temperature :</b> 4.1°C - Ice present</p> <p><b>No. of samples received :</b> 2</p> <p><b>No. of samples analysed :</b> 2</p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Samples TS(2) and TB(1) not received by ALS Sydney.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-T Total Metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T Total Metals in Saline Water - Suite B by	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-04 TRH/BTEXN
ES1405741-001	14-MAR-2014 15:00	VR_C_SW07	✓	✓	✓	✓	✓	✓
ES1405741-002	14-MAR-2014 15:00	D03_140314_JD	✓	✓	✓	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1405741**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : SYMPHONY DELTANORTH</b></p> <p><b>Address : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : symphony.deltanorth@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
--	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p>
--	--

<p><b>Sampler : JD</b></p>	<p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
----------------------------	---

#### Dates

<p><b>Date Samples Received : 17-MAR-2014</b></p> <p><b>Client Requested Due Date : 27-MAR-2014</b></p>	<p><b>Issue Date : 21-MAR-2014 14:29</b></p> <p><b>Scheduled Reporting Date : <b>27-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 4.1°C - Ice present</b></p> <p><b>No. of samples received : 2</b></p> <p><b>No. of samples analysed : 2</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T02\_140314\_JD will be forwarded to Envirolab as per COC.**
- **Samples TS(2) and TB(1) not received by ALS Sydney.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EG094B-T Total Metals in Fresh Water Suite B by ORC-ICPMS	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-04 TRH/BTEXN
ES1405741-001	14-MAR-2014 15:00	VR_C_SW07	✓	✓	✓	✓	✓	✓
ES1405741-002	14-MAR-2014 15:00	D03_140314_JD	✓	✓	✓	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**Environmental**  
**CHAIN OF CUSTODY**  
 ALS Laboratory:  
 please tick →

DADELAIDE 21 Burna Road Foranda SA 5095  
 Ph: 08 8559 0800 E: saulade@siglobal.com  
 DUNEDIN 32 Shand Street Station QLD 4013  
 Ph: 07 3243 7222 E: samples.dunedin@siglobal.com  
 DGOASTON 46 Calverton Drive QLD 4680  
 Ph: 07 4471 5800 E: graham@siglobal.com

DMACKAY 78 Harbour Road Marooch QLD 4740  
 Ph: 07 4644 0177 E: mackay@siglobal.com  
 DMELBOURNE 2-4 Westall Road Springvale VIC 3171  
 Ph: 03 8549 9000 E: samples.melbourne@siglobal.com  
 DMUNDEE 27 Sydney Road Adelaide NSW 2850  
 Ph: 02 8372 6735 E: mudgee@siglobal.com

DNEWCASTLE 5 Sme Gurn Road Newcastle NSW 2304  
 Ph: 02 4669 5483 E: samples.newcastle@siglobal.com  
 DNOYRA 41/3 Garry Road North Sydney NSW 2061  
 Ph: 02 4623 2003 E: noyra@siglobal.com  
 DPERTH 10 Hood Way Midland WA 8020  
 Ph: 08 9209 7859 E: samples.perth@siglobal.com

DSYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
 Ph: 02 8784 8555 E: samples.sydney@siglobal.com  
 DTOWNSVILLE 14-15 Darwin Court Sth QLD 4810  
 Ph: 07 4796 0800 E: towsville@siglobal.com  
 DWOOLONGONG 36 Kenny Street Wollongong NSW 2500  
 Ph: 02 4225 3125 E: woolongong@siglobal.com

CLIENT: ERM  
 OFFICE: PYRMONT  
 PROJECT: VALES POINT POWER STATION  
 ORDER NUMBER: 0237747  
 PROJECT MANAGER: JOHN EWING  
 CONTACT PH: 0401 776 290  
 CONTACT PH MOBILE:  
 SAMPLER MOBILE:  
 SAMPLER: SD  
 EDD FORMAT (or default):  
 COC emailed to ALS? (YES / NO)  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delanorh@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.delanorh@erm.com

TURNAROUND REQUIREMENTS:  Standard TAT (list due date);  Non Standard or urgent TAT (list due date);  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.:  
 COC SEQUENCE NUMBER (Circle):  
 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7

RELINQUISHED BY: S. Denevoux  
 DATE/TIME: 14.3.14 18:00  
 RECEIVED BY: Ken  
 DATE/TIME: 14.3.14 19:00

FOR LABORATORY USE ONLY (COC)  
 Cleaned/Sealed/Inspected  
 Free for Release for Field Use (Temperature on Receipt)  
 (Temperature)  
 Yes No N/A  
 Yes No N/A  
 Yes No N/A

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED INCLUDING SUITES (NB Suite Codes must be listed to attract suite price)  
 Where Metals are required, specify Total (unfiltered bottle required) or Discarded (field filtered bottle required).

Additional Information

ALS USE	SAMPLE DETAILS MATERIAL(S) WATER (W)	CONTAINER INFORMATION	MATRIX	TYPE & PRESERVATIVE (codes below)	DATE / TIME	TOTAL CONTAINERS	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/ PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	1 W.C.-SM07		W	2x amber 250mls 1x plastic	14.3.14	5	X	X	X								BTEP ONLY
	2 D03-140314-SD		W		"	5	X	X	X								REVOLUTION
	3 TS(C2)		W	1 vial	"	1											
	4 TR(15)		W	1 vial	"	1											
			W														
<p>Subcom Forward 1 SD / Still WO          Lab / Analysis: <del>10</del> 10 140314-SD          Organised BY / Date: <del>Sam</del>          Relinquished BY / Date: <del>Sam</del>          Contone / Certificate No: 81405741          W/O No: 81405741          Attach by SD / Internal Signoff:</p>																	
<p>Environmental Division          Work Order  <b>ES1405741</b></p>																	
<p>Barcode:           Telephone: +61-2-8784 8555</p>																	
<p>Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air-tight Unpreserved Plastic          V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air-tight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speculation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass          Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Salts; B = Unpreserved Bag</p>																	

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406274</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VLAES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SURESH NUTHALAPATI <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 31-MAR-2014  <b>No. of samples received</b> : 10 <b>No. of samples analysed</b> : 9
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



---

### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW05_210314	VO_MW06_210314	VO_MW7_210314	VO_MW9_210314	VO_MW10_210314
				21-MAR-2014 12:22	21-MAR-2014 11:38	21-MAR-2014 10:48	21-MAR-2014 10:08	21-MAR-2014 08:30
				ES1406274-001	ES1406274-002	ES1406274-003	ES1406274-004	ES1406274-005
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.022	0.049	<0.001	0.003	<0.001
Boron	7440-42-8	0.05	mg/L	0.08	0.49	<0.05	0.06	<0.05
Barium	7440-39-3	0.001	mg/L	0.192	0.171	0.054	1.70	0.157
Beryllium	7440-41-7	0.001	mg/L	0.003	0.003	<0.001	0.004	<0.001
Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0010	<0.0001	0.0005	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.042	0.168	0.005	0.044	0.027
Chromium	7440-47-3	0.001	mg/L	0.033	0.027	<0.001	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	0.003	0.001	0.016	<0.001
Manganese	7439-96-5	0.001	mg/L	3.87	17.3	0.045	2.46	0.959
Nickel	7440-02-0	0.001	mg/L	0.060	0.066	0.003	0.031	0.010
Lead	7439-92-1	0.001	mg/L	0.090	0.050	0.005	0.020	<0.001
Selenium	7782-49-2	0.01	mg/L	0.11	0.26	<0.01	0.03	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.140	0.191	0.026	0.151	0.037
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW05_210314	VO_MW06_210314	VO_MW7_210314	VO_MW9_210314	VO_MW10_210314
				21-MAR-2014 12:22	21-MAR-2014 11:38	21-MAR-2014 10:48	21-MAR-2014 10:08	21-MAR-2014 08:30
				ES1406274-001	ES1406274-002	ES1406274-003	ES1406274-004	ES1406274-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW05_210314	VO_MW06_210314	VO_MW7_210314	VO_MW9_210314	VO_MW10_210314
				21-MAR-2014 12:22	21-MAR-2014 11:38	21-MAR-2014 10:48	21-MAR-2014 10:08	21-MAR-2014 08:30
Compound	CAS Number	LOR	Unit	ES1406274-001	ES1406274-002	ES1406274-003	ES1406274-004	ES1406274-005
<b>EP080: BTEXN - Continued</b>								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	31.9	31.8	31.2	28.0	33.6
2-Chlorophenol-D4	93951-73-6	0.1	%	64.0	66.2	64.3	58.4	69.0
2,4,6-Tribromophenol	118-79-6	0.1	%	79.2	74.9	75.1	69.4	80.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	77.1	78.3	77.4	70.5	80.5
Anthracene-d10	1719-06-8	0.1	%	79.3	78.4	79.6	73.0	82.9
4-Terphenyl-d14	1718-51-0	0.1	%	72.4	71.0	74.0	67.9	76.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	119	97.3	105	97.5	97.4
Toluene-D8	2037-26-5	0.1	%	88.6	87.4	96.7	90.5	89.4
4-Bromofluorobenzene	460-00-4	0.1	%	85.0	80.0	94.9	90.7	89.7



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VO_MW20_210314	D01_210314_SN	TRIP SPIKE	TRIP BLANK	---
21-MAR-2014 09:18	ES1406274-006	ES1406274-007	ES1406274-008	ES1406274-009	---

Compound	CAS Number	LOR	Unit	ES1406274-006	ES1406274-007	ES1406274-008	ES1406274-009	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	---	---	---
Barium	7440-39-3	0.001	mg/L	<b>0.097</b>	<b>0.175</b>	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	---	---	---
Cobalt	7440-48-4	0.001	mg/L	<b>0.005</b>	<b>0.026</b>	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	---	---	---
Manganese	7439-96-5	0.001	mg/L	<b>0.490</b>	<b>1.07</b>	---	---	---
Nickel	7440-02-0	0.001	mg/L	<b>0.001</b>	<b>0.009</b>	---	---	---
Lead	7439-92-1	0.001	mg/L	<b>0.001</b>	<0.001	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	---	---	---
Zinc	7440-66-6	0.005	mg/L	<b>0.019</b>	<b>0.017</b>	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

VO_MW20_210314	D01_210314_SN	TRIP SPIKE	TRIP BLANK	----
21-MAR-2014 09:18	21-MAR-2014 08:00	21-MAR-2014 15:00	21-MAR-2014 15:00	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406274-006	ES1406274-007	ES1406274-008	ES1406274-009	----
----------	------------	-----	------	---------------	---------------	---------------	---------------	------

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	16	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	16	<2	----



**Analytical Results**

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VO_MW20_210314	D01_210314_SN	TRIP SPIKE	TRIP BLANK	
Client sampling date / time	21-MAR-2014 09:18	21-MAR-2014 08:00	21-MAR-2014 15:00	21-MAR-2014 15:00	----
	ES1406274-006	ES1406274-007	ES1406274-008	ES1406274-009	----

Compound	CAS Number	LOR	Unit	ES1406274-006	ES1406274-007	ES1406274-008	ES1406274-009	----
<b>EP080: BTEXN - Continued</b>								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	13	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	15	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	15	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	30	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	75	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	19	<5	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	28.7	26.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	60.0	55.5	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	66.1	63.5	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	70.2	62.5	----	----	----
Anthracene-d10	1719-06-8	0.1	%	73.2	56.3	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	66.4	64.3	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	91.7	115	86.6	126	----
Toluene-D8	2037-26-5	0.1	%	91.2	82.7	87.4	89.6	----
4-Bromofluorobenzene	460-00-4	0.1	%	91.6	81.3	85.0	85.7	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406274</b>	<b>Page</b>	: 1 of 10
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VLAES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 21-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 31-MAR-2014
<b>Sampler</b>	: SURESH NUTHALAPATI	<b>No. of samples received</b>	: 10
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 9
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### *Signatories*

Celine Conceicao  
Edwandy Fadjar  
Pabi Subba

#### *Position*

Senior Spectroscopist  
Organic Coordinator  
Senior Organic Chemist

#### *Accreditation Category*

Sydney Inorganics  
Sydney Organics  
Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3358884)</b>									
ES1404526-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1406274-003	VO_MW7_210314	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.054	0.054	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.045	0.045	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.026	0.024	6.6	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354821)</b>									
ES1406140-012	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406281-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361095)</b>									
ES1406274-001	VO_MW05_210314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406278-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095)</b>									
ES1406274-001	VO_MW05_210314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit



Page : 4 of 10  
 Work Order : ES1406274  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VLAES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095) - continued</b>									
ES1406278-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3361095)</b>									
ES1406274-001	VO_MW05_210314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1406278-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	91.5	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	92.4	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	108	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	101	68	128	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.1	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	93.4	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	32.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	75.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	54.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	70.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.1	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	63.8	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	72.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	65.0	63	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534) - continued</b>									
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	68.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	34.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	65.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	70.4	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	73.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	84.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	87.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	80.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	73.6	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	83.2	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	80.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	75.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	77.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	75.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.3	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	102	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.1	75	127	
<b>EP080: BTEXN (QCLot: 3361095)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	103	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.6	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>								
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	90.3	70	130	
		EG020A-T: Barium	7440-39-3	1 mg/L	97.1	70	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	70	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70	130	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	107	70	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130	
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884) - continued</b>								
ES1406004-018	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	101	70	130	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	100	70	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>								
ES1406274-001	VO_MW05_210314	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	70	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>								
ES1406281-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	36.5	20	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	63.1	60	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	66.6	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.5	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	82.5	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>								
ES1406281-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	70.5	70	130	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	84.2	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>								
ES1406281-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	94.4	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	101	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	103	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>								
ES1406274-001	VO_MW05_210314	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>								
ES1406281-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	92.2	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	103	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>								
ES1406274-001	VO_MW05_210314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	70	130	
<b>EP080: BTEXN (QCLot: 3361095)</b>								
ES1406274-001	VO_MW05_210314	EP080: Benzene	71-43-2	25 µg/L	76.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	94.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	110	70	130		



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>										
ES1406281-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	94.4	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	101	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	103	----	67	153	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>										
ES1406281-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	92.2	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	103	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	----	67	153	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>										
ES1406281-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	36.5	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	63.1	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	66.6	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.5	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	82.5	----	20	130	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>										
ES1406281-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	70.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	84.2	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>										
ES1406274-001	VO_MW05_210314	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>										
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	90.3	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	97.1	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	107	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	103	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	100	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>										
ES1406274-001	VO_MW05_210314	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>										
ES1406274-001	VO_MW05_210314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3361095)</b>										



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
<b>EP080: BTEXN (QCLot: 3361095) - continued</b>										
ES1406274-001	VO_MW05_210314	EP080: Benzene	71-43-2	25 µg/L	76.8	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	94.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406274</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VLAES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: SURESH NUTHALAPATI	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 9
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T)</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314,	21-MAR-2014	26-MAR-2014	17-SEP-2014	✓	27-MAR-2014	17-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314,	21-MAR-2014	----	----	----	24-MAR-2014	18-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314,	21-MAR-2014	25-MAR-2014	28-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314,	21-MAR-2014	25-MAR-2014	28-MAR-2014	✓	27-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314,	21-MAR-2014	25-MAR-2014	28-MAR-2014	✓	27-MAR-2014	04-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN, TRIP BLANK	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314, TRIP SPIKE,	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW05_210314, VO_MW7_210314, VO_MW10_210314, D01_210314_SN,	VO_MW06_210314, VO_MW9_210314, VO_MW20_210314, TRIP BLANK	21-MAR-2014	27-MAR-2014	04-APR-2014	✓	27-MAR-2014	04-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1406274</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VLAES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : SURESH NUTHALAPATI	<b>Page</b> : 1 of 3  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 21-MAR-2014 <b>Client Requested Due Date</b> : 31-MAR-2014	<b>Issue Date</b> : 22-MAR-2014 09:52 <b>Scheduled Reporting Date</b> : <b>31-MAR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 1 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 2.4°C - Ice present <b>No. of samples received</b> : 10 <b>No. of samples analysed</b> : 9
---	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample VO\_MW05\_210314 and VO\_MW06\_210314 ultra trace metal bottle, therefore standard metal W13 conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EP080	BTEXN	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN	WATER - W-24	TRH/BTEXN/PAH/Phenols
ES1406274-001	21-MAR-2014 12:22	VO_MW05_210314					✓					✓
ES1406274-002	21-MAR-2014 11:38	VO_MW06_210314					✓					✓
ES1406274-003	21-MAR-2014 10:48	VO_MW7_210314					✓					✓
ES1406274-004	21-MAR-2014 10:08	VO_MW9_210314					✓					✓
ES1406274-005	21-MAR-2014 08:30	VO_MW10_210314					✓					✓
ES1406274-006	21-MAR-2014 09:18	VO_MW20_210314					✓					✓
ES1406274-007	21-MAR-2014 08:00	D01_210314_SN					✓					✓
ES1406274-008	21-MAR-2014 15:00	TRIP SPIKE			✓							
ES1406274-009	21-MAR-2014 15:00	TRIP BLANK							✓			
ES1406274-010	21-MAR-2014 15:00	R01_210314	✓									

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406274</b>		
<b>Amendment</b>	: <b>1</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747		
<b>C-O-C number</b>	: ----	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>Site</b>	: ----		
<b>Sampler</b>	: SURESH NUTHALAPATI	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

Date Samples Received	: 21-MAR-2014	Issue Date	: 17-APR-2014 15:23
Client Requested Due Date	: 22-APR-2014	Scheduled Reporting Date	: <b>22-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.4°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 10
Security Seal	: Intact.	No. of samples analysed	: 9

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample VO\_MW05\_210314 and VO\_MW06\_210314 ultra trace metal bottle, therefore standard metal W13 conducted.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EP080	BTEXN	WATER - W-03	15 Metals (NEPM Suite)	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN	WATER - W-24	TRH/BTEXN/PAH/Phenols
ES1406274-001	21-MAR-2014 12:22	VO_MW05_210314					✓	✓					✓	
ES1406274-002	21-MAR-2014 11:38	VO_MW06_210314					✓	✓					✓	
ES1406274-003	21-MAR-2014 10:48	VO_MW7_210314					✓	✓					✓	
ES1406274-004	21-MAR-2014 10:08	VO_MW9_210314					✓	✓					✓	
ES1406274-005	21-MAR-2014 08:30	VO_MW10_210314					✓	✓					✓	
ES1406274-006	21-MAR-2014 09:18	VO_MW20_210314					✓	✓					✓	
ES1406274-007	21-MAR-2014 08:00	D01_210314_SN					✓	✓					✓	
ES1406274-008	21-MAR-2014 15:00	TRIP SPIKE			✓									
ES1406274-009	21-MAR-2014 15:00	TRIP BLANK									✓			
ES1406274-010	21-MAR-2014 15:00	R01_210314	✓											

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

DADELAIDE 21 Burma Road Pineside SA 5095  
Ph: 08 8359 0600 E: dade@alsglobal.com  
QUEENSLAND 32 Shand Street Stafford QLD 4053  
Ph: 07 3243 7222 E: samples@alsglobal.com  
QUEENSLAND 46 Callemore Drive Chino QLD 4090  
Ph: 07 7471 6600 E: qld@alsglobal.com

DIMACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com  
MELBOURNE 2-4 Wedal Road Springvale VIC 3171  
Ph: 03 8649 9000 E: mel@alsglobal.com  
MELBOURNE 27 Sydney Road Hudsons NSW 1565  
Ph: 02 9372 6255 E: mel@alsglobal.com

ONEWCASTLE 5 Ross Gum Road Warragbek NSW 2304  
Ph: 02 4689 9433 E: samples@alsglobal.com  
TOWNSVILLE 14-16 Deena Court Boche QLD 4818  
Ph: 07 4786 0600 E: townsville@alsglobal.com  
WOLLONGONG 89 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 3726 E: wollongong@alsglobal.com

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
PROJECT MANAGER: JOHN EWING  
CONTACT PH: 0401 776 290

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

ALSO QUOTE NO.:

SAMPLER: **SURESH NUTHALAPATI**  
COC emailed to ALS? ( YES / NO)  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltanorth@erm.com

RECEIVED BY: **SURESH NUTHALAPATI**  
DATE/TIME: **21-03-14 2:00PM**

RELINQUISHED BY:  
DATE/TIME:

RECEIVED BY:  
DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (to codes below)	CONTAINER INFORMATION (refer to codes below)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information		
						8 METALS (W-2)	13 METALS (W-3)	TPH/TEX/PAH	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals			
1	VD-MW05-210314	21-03-14 12:21	(W)	AG, VS, P, N	10	X	X	X	X	X								
2	VD-MW06-210314	" 11:38	(W)	AG, VS, P, N	9	X	X	X	X	X								
3	VD-MW07-210314	" 10:48	(W)	AG, VS, P	4	X	X	X	X	X								
4	VD-MW09-210314	" 10:08	(W)	AG, VS, P	4	X	X	X	X	X								
5	VD-MW10-210314	" 8:30	(W)	AG, VS, P	4	X	X	X	X	X								
6	VD-MW20-210314	" 9:18	(W)	AG, VS, P	4	X	X	X	X	X								
7	<del>VD-MW21-210314-SN</del>	" 8:00	(W)	AG, VS, P	4	X	X	X	X	X								
8	TRIP SPIKE	" "	(W)	VS	2	X	X	X	X	X							13 Metals (W-3)	
9	TRIP BLANK	" "	(W)	VS	4	X	X	X	X	X								BTEX + TPH
10	ROL-210314-SN	" "	(W)	AG, VS, P	6	X	X	X	X	X								BTEX + TPH
					<b>TOTAL</b>													

Environmental Division  
Sydney  
Work Order  
**ES1406274**

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Sulphate Preserved; VS = VOA Vial Sulfuric Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406281</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : ---- <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 21-MAR-2014 <b>Issue Date</b> : 31-MAR-2014  <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 6
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



---

## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L and C6-C9 spiked at 520 ug/L (theoretical), 460 ug/L (average quantifiable).**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW13_200314	VO_MW12_200314	VO_MW11_200314	D01_200314_SN	TRIP SPIKE
				20-MAR-2014 14:15	20-MAR-2014 15:08	20-MAR-2014 16:08	20-MAR-2014 15:08	20-MAR-2014 15:00
				ES1406281-001	ES1406281-002	ES1406281-003	ES1406281-004	ES1406281-005
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	<b>0.040</b>	----	<b>0.204</b>	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	<b>0.002</b>	----	<b>0.020</b>	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	<b>0.002</b>	----	----
Manganese	7439-96-5	0.001	mg/L	<b>0.060</b>	----	<b>0.224</b>	----	----
Nickel	7440-02-0	0.001	mg/L	<b>0.004</b>	----	<b>0.010</b>	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	<b>0.005</b>	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	<b>0.030</b>	----	<b>0.036</b>	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	<0.001	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	----	<0.001	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	----	<b>247</b>	----	<b>248</b>	----
Arsenic	7440-38-2	0.5	µg/L	----	<b>109</b>	----	<b>109</b>	----
Barium	7440-39-3	1	µg/L	----	<b>124</b>	----	<b>126</b>	----
Beryllium	7440-41-7	0.1	µg/L	----	<b>13.7</b>	----	<b>13.7</b>	----
Boron	7440-42-8	100	µg/L	----	<b>1700</b>	----	<b>1710</b>	----
Cadmium	7440-43-9	0.2	µg/L	----	<b>0.4</b>	----	<b>0.4</b>	----
Chromium	7440-47-3	0.5	µg/L	----	<b>1.9</b>	----	<b>1.9</b>	----
Cobalt	7440-48-4	0.2	µg/L	----	<b>10.1</b>	----	<b>10.3</b>	----
Copper	7440-50-8	1	µg/L	----	<b>3</b>	----	<b>5</b>	----
Lead	7439-92-1	0.2	µg/L	----	<b>13.1</b>	----	<b>13.2</b>	----
Manganese	7439-96-5	0.5	µg/L	----	<b>707</b>	----	<b>699</b>	----
Molybdenum	7439-98-7	0.1	µg/L	----	<0.1	----	<0.1	----
Nickel	7440-02-0	0.5	µg/L	----	<b>33.5</b>	----	<b>33.3</b>	----
Thallium	7440-28-0	0.1	µg/L	----	<b>1.7</b>	----	<b>1.7</b>	----
Vanadium	7440-62-2	0.5	µg/L	----	<b>51.8</b>	----	<b>51.8</b>	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW13_200314	VO_MW12_200314	VO_MW11_200314	D01_200314_SN	TRIP SPIKE
				20-MAR-2014 14:15	20-MAR-2014 15:08	20-MAR-2014 16:08	20-MAR-2014 15:08	20-MAR-2014 15:00
				ES1406281-001	ES1406281-002	ES1406281-003	ES1406281-004	ES1406281-005
Compound	CAS Number	LOR	Unit					
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	5	µg/L	----	258	----	273	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW13_200314	VO_MW12_200314	VO_MW11_200314	D01_200314_SN	TRIP SPIKE
				20-MAR-2014 14:15	20-MAR-2014 15:08	20-MAR-2014 16:08	20-MAR-2014 15:08	20-MAR-2014 15:00
				ES1406281-001	ES1406281-002	ES1406281-003	ES1406281-004	ES1406281-005
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	16
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	16
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	13
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	15
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	16
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	31
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	76
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	20
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	28.3	35.7	31.1	27.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	59.5	68.7	65.5	53.3	----
2,4,6-Tribromophenol	118-79-6	0.1	%	79.1	70.4	72.3	61.3	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.3	79.8	73.3	68.8	----
Anthracene-d10	1719-06-8	0.1	%	79.5	81.8	77.5	69.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	76.6	81.6	72.4	65.0	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	128	104	84.8	86.5	94.7



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VO_MW13_200314	VO_MW12_200314	VO_MW11_200314	D01_200314_SN	TRIP SPIKE
Client sampling date / time	20-MAR-2014 14:15	20-MAR-2014 15:08	20-MAR-2014 16:08	20-MAR-2014 15:08	20-MAR-2014 15:00
	ES1406281-001	ES1406281-002	ES1406281-003	ES1406281-004	ES1406281-005

Compound	CAS Number	LOR	Unit	ES1406281-001	ES1406281-002	ES1406281-003	ES1406281-004	ES1406281-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	89.2	92.8	91.6	93.1	86.6
4-Bromofluorobenzene	460-00-4	0.1	%	85.8	93.9	90.3	92.4	83.9



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				TRIP BLANK	---	---	---	---
				20-MAR-2014 15:00	---	---	---	---
Compound	CAS Number	LOR	Unit	ES1406281-006	---	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.6	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	91.1	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	84.9	---	---	---	---



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406281</b>	Page	: 1 of 10
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 21-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 31-MAR-2014
<b>Sampler</b>	: ----	<b>No. of samples received</b>	: 7
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 6
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3358884)</b>									
ES1404526-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406274-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.054	0.054	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.045	0.045	0.0	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.026	0.024	6.6	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3354821)</b>									
ES1406140-012	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406281-001	VO_MW13_200314	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3363145)</b>									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3363145) - continued</b>										
ES1406281-002	VO_MW12_200314	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	13.7	13.4	2.6	0% - 20%	
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	1.7	1.7	0.0	0% - 50%	
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	0.4	0.5	0.0	No Limit	
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	10.1	10.1	0.0	0% - 20%	
		EG093A-T: Lead	7439-92-1	0.2	µg/L	13.1	13.6	3.4	0% - 20%	
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	109	109	0.0	0% - 20%	
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	1.9	1.9	0.0	No Limit	
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	707	701	0.9	0% - 20%	
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	33.5	32.2	3.9	0% - 20%	
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	51.8	51.3	1.0	0% - 20%	
		EG093A-T: Barium	7440-39-3	1	µg/L	124	124	0.0	0% - 20%	
		EG093A-T: Copper	7440-50-8	1	µg/L	3	3	0.0	No Limit	
		EG093A-T: Boron	7440-42-8	100	µg/L	1700	1720	0.9	0% - 50%	
EG093A-T: Zinc	7440-66-6	5	µg/L	258	257	0.0	0% - 20%			
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3363146)</b>										
ES1406281-002	VO_MW12_200314	EG093B-T: Selenium	7782-49-2	2	µg/L	247	244	1.5	0% - 20%	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406278-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406278-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3361095)</b>										
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406278-005	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	91.5	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	92.4	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.9	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	108	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.8	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	101	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	109	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.1	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	93.4	73	127	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	77	115	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3363145)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	104	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	107	82	128	
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	92.8	79	123	
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	93.4	80	118	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	103	86	126	
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	96.3	90	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	87.5	84	128	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	97.7	87	125	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	102	86	126	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	104	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	107	85	125	
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	95.7	81	127	
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	86.5	84	126	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	103	82	128	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3363146)</b>									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	93.2	75	133	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	32.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	75.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	54.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	70.5	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.1	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	63.8	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	72.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	65.0	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	68.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	34.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	65.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	70.4	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	73.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	84.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
				Result		LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	87.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	80.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	73.6	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	83.2	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	80.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	75.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	77.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	75.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.4	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.3	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	102	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.1	75	127	
<b>EP080: BTEXN (QCLot: 3361095)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3361095) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	103	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.6	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>						
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70 130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	90.3	70 130
		EG020A-T: Barium	7440-39-3	1 mg/L	97.1	70 130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	70 130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70 130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	107	70 130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70 130
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70 130
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	70 130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70 130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	100	70 130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70 130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>						
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	70 130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>						
ES1406281-002	VO_MW12_200314	EP075(SIM): Phenol	108-95-2	20 µg/L	36.5	20 130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	63.1	60 130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	66.6	60 130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.5	70 130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	82.5	20 130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>						
ES1406281-002	VO_MW12_200314	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	70.5	70 130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	84.2	70 130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>						
ES1406281-002	VO_MW12_200314	EP071: C10 - C14 Fraction	----	200 µg/L	94.4	74 150



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533) - continued</b>								
ES1406281-002	VO_MW12_200314	EP071: C15 - C28 Fraction	----	300 µg/L	101	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	103	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>								
ES1406281-002	VO_MW12_200314	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	92.2	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	103	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	70	130	
<b>EP080: BTEXN (QCLot: 3361095)</b>								
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	94.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	110	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3354533)</b>										
ES1406281-002	VO_MW12_200314	EP071: C10 - C14 Fraction	----	200 µg/L	94.4	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	101	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	103	----	67	153	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3354533)</b>										
ES1406281-002	VO_MW12_200314	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	92.2	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	103	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	----	67	153	----	----
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534)</b>										
ES1406281-002	VO_MW12_200314	EP075(SIM): Phenol	108-95-2	20 µg/L	36.5	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	63.1	----	60	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3354534) - continued</b>											
ES1406281-002	VO_MW12_200314	EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	66.6	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.5	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	82.5	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3354534)</b>											
ES1406281-002	VO_MW12_200314	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	70.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	84.2	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3354821)</b>											
ES1406274-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	78.6	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3358884)</b>											
ES1406004-018	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	90.3	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	97.1	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	107	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	103	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----	
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	----	70	130	----	----	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	100	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.9	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.4	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3361095)</b>											
ES1406274-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	94.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.9	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	92.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.7	----	70	130	----	----	
EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----			

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406281</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 21-MAR-2014
C-O-C number	: ----	Issue Date	: 31-MAR-2014
Sampler	: ----	No. of samples received	: 7
Order number	: 0237747	No. of samples analysed	: 6
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) VO_MW13_200314, VO_MW11_200314	20-MAR-2014	26-MAR-2014	16-SEP-2014	✓	27-MAR-2014	16-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) VO_MW13_200314, VO_MW11_200314, VO_MW12_200314, D01_200314_SN	20-MAR-2014	----	----	----	24-MAR-2014	17-APR-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG093A-T) VO_MW12_200314, D01_200314_SN	20-MAR-2014	28-MAR-2014	16-SEP-2014	✓	28-MAR-2014	16-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG093B-T) VO_MW12_200314, D01_200314_SN	20-MAR-2014	28-MAR-2014	16-SEP-2014	✓	28-MAR-2014	16-SEP-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) VO_MW13_200314, VO_MW11_200314, VO_MW12_200314, D01_200314_SN	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	26-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) VO_MW13_200314, VO_MW11_200314, VO_MW12_200314, D01_200314_SN	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	04-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) VO_MW13_200314, VO_MW11_200314, VO_MW12_200314, D01_200314_SN	20-MAR-2014	25-MAR-2014	27-MAR-2014	✓	27-MAR-2014	04-MAY-2014	✓
<b>EP080: BTEXN</b>							
Amber VOC Vial - Sulfuric Acid (EP080) VO_MW13_200314, VO_MW11_200314, TRIP SPIKE, VO_MW12_200314, D01_200314_SN, TRIP BLANK	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓



Page : 3 of 7  
 Work Order : ES1406281  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW13_200314, VO_MW11_200314, TRIP BLANK	VO_MW12_200314, D01_200314_SN,	20-MAR-2014	27-MAR-2014	03-APR-2014	✓	27-MAR-2014	03-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Mercury by FIMS	EG035T	2	15	13.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	9.5	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8

Page : 6 of 7  
Work Order : ES1406281  
Client : ENVIRO RESOURCES MANAGEMENT  
Project : VALES POINT



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



---

## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order : ES1406281**

**Client : ENVIRO RESOURCES MANAGEMENT**      **Laboratory : Environmental Division Sydney**

**Contact : JOHN EWING**      **Contact : Barbara Hanna**  
**Address : GROUND FLOOR**      **Address : 277-289 Woodpark Road Smithfield**  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail : john.ewing@erm.com**      **E-mail : Barbara.Hanna@alsglobal.com**  
**Telephone : +61 02 8584 8888**      **Telephone : +61 2 8784 8555**  
**Facsimile : +61 02 8584 8800**      **Facsimile : +61 2 8784 8555**

**Project : COLONGRA POWER STATION**      **Page : 1 of 3**

**Order number : 0237749**      **Quote number : ES2014ENVRES0385 (SY/050/14 V3)**

**C-O-C number : ----**      **QC Level : NEPM 2013 Schedule B(3) and ALS**  
**Site : ----**      **QCS3 requirement**  
**Sampler : ----**

**Dates**

**Date Samples Received : 21-MAR-2014**      **Issue Date : 24-MAR-2014 08:38**  
**Client Requested Due Date : 28-MAR-2014**      **Scheduled Reporting Date : 28-MAR-2014**

**Delivery Details**

**Mode of Delivery : Carrier**      **Temperature : 2.7°C - Ice present**  
**No. of coolers/boxes : 1 HARD**      **No. of samples received : 7**  
**Security Seal : Intact.**      **No. of samples analysed : 6**

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Received extra sample VO\_QA1\_200314 (only 1 x 500ml amber) placed on hold, Please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EG020T	Total Recoverable Metals by ICPMS (including WATER - EG035T)	Total Mercury by FIMS	WATER - EG03A-T	Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG03B-T	Total Metals in Saline Water - Suite B by WATER - EP080	BTEXN	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314		✓										✓		
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314			✓	✓	✓									
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314		✓										✓		
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN			✓	✓	✓									
ES1406281-005	20-MAR-2014 15:00	TRIP SPIKE									✓					
ES1406281-006	20-MAR-2014 15:00	TRIP BLANK														✓
ES1406281-007	20-MAR-2014 15:00	VO_QA1_200314	✓													

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314	✓
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314	✓
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314	✓
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order : ES1406281**

**Client : ENVIRO RESOURCES MANAGEMENT**      **Laboratory : Environmental Division Sydney**

**Contact : JOHN EWING**      **Contact : Barbara Hanna**  
**Address : GROUND FLOOR**      **Address : 277-289 Woodpark Road Smithfield**  
33 SAUNDERS STREET, PYRMONT      NSW Australia 2164  
NSW 2009  
LOCKED BAG 24  
BROADWAY NSW, AUSTRALIA 2007

**E-mail : john.ewing@erm.com**      **E-mail : Barbara.Hanna@alsglobal.com**  
**Telephone : +61 02 8584 8888**      **Telephone : +61 2 8784 8555**  
**Facsimile : +61 02 8584 8800**      **Facsimile : +61 2 8784 8555**

**Project : COLONGRA POWER STATION**      **Page : 1 of 3**

**Order number : 0237749**      **Quote number : ES2014ENVRES0385 (SY/050/14 V3)**

**C-O-C number : ----**      **QC Level : NEPM 2013 Schedule B(3) and ALS**  
**Site : ----**      **QCS3 requirement**  
**Sampler : ----**

**Dates**

**Date Samples Received : 21-MAR-2014**      **Issue Date : 24-MAR-2014 08:57**  
**Client Requested Due Date : 31-MAR-2014**      **Scheduled Reporting Date : 31-MAR-2014**

**Delivery Details**

**Mode of Delivery : Carrier**      **Temperature : 2.7°C - Ice present**  
**No. of coolers/boxes : 1 HARD**      **No. of samples received : 7**  
**Security Seal : Intact.**      **No. of samples analysed : 6**

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Received extra sample VO\_QA1\_200314 (only 1 x 500ml amber) placed on hold, Please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EG020T	Total Recoverable Metals by ICPMS (including WATER - EG035T)	Total Mercury by FIMS	WATER - EG093A-T	Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T	Total Metals in Saline Water - Suite B by WATER - EP080	BTEXN	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314		✓										✓		
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314			✓	✓	✓									
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314		✓										✓		
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN			✓	✓	✓									
ES1406281-005	20-MAR-2014 15:00	TRIP SPIKE									✓					
ES1406281-006	20-MAR-2014 15:00	TRIP BLANK														✓
ES1406281-007	20-MAR-2014 15:00	VO_QA1_200314	✓													

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314	✓
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314	✓
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314	✓
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406281**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : ----</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 21-MAR-2014</b></p> <p><b>Client Requested Due Date : 31-MAR-2014</b></p>	<p><b>Issue Date : 25-MAR-2014 12:45</b></p> <p><b>Scheduled Reporting Date : <b>31-MAR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.7°C - Ice present</b></p> <p><b>No. of samples received : 7</b></p> <p><b>No. of samples analysed : 6</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Received extra sample VO\_QA1\_200314 (only 1 x 500ml amber) placed on hold, Please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EG020T	Total Recoverable Metals by ICPMS (including WATER - EG035T)	Total Mercury by FIMS	WATER - EG093A-T	Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T	Total Metals in Saline Water - Suite B by WATER - EP080	BTEXN	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314		✓										✓		
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314			✓	✓	✓									
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314		✓										✓		
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN			✓	✓	✓									
ES1406281-005	20-MAR-2014 15:00	TRIP SPIKE									✓					
ES1406281-006	20-MAR-2014 15:00	TRIP BLANK														✓
ES1406281-007	20-MAR-2014 15:00	VO_QA1_200314	✓													

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314	✓
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314	✓
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314	✓
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order** : ES1406281

**Amendment** : 1

**Client** : ENVIRO RESOURCES MANAGEMENT  
**Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING  
**Address** : GROUND FLOOR  
 33 SAUNDERS STREET, PYRMONT  
 NSW 2009  
 LOCKED BAG 24  
 BROADWAY NSW, AUSTRALIA 2007

**Contact** : Barbara Hanna  
**Address** : 277-289 Woodpark Road Smithfield  
 NSW Australia 2164

**E-mail** : john.ewing@erm.com  
**Telephone** : +61 02 8584 8888  
**Facsimile** : +61 02 8584 8800

**E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 2 8784 8555  
**Facsimile** : +61 2 8784 8555

**Project** : VALES POINT  
**Order number** : 0237747  
**C-O-C number** : ----  
**Site** : ----  
**Sampler** : ----

**Page** : 1 of 3  
**Quote number** : ES2014ENVRES0385 (SY/050/14 V3)

**QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

**Date Samples Received** : 21-MAR-2014  
**Client Requested Due Date** : 22-APR-2014  
**Issue Date** : 17-APR-2014 15:30  
**Scheduled Reporting Date** : **22-APR-2014**

#### Delivery Details

**Mode of Delivery** : Carrier  
**No. of coolers/boxes** : 1 HARD  
**Security Seal** : Intact.

**Temperature** : 2.7°C - Ice present  
**No. of samples received** : 7  
**No. of samples analysed** : 6

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Received extra sample VO\_QA1\_200314 (only 1 x 500ml amber) placed on hold, Please confirm.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EG020F	Dissolved Metals by ICPMS	WATER - EG020T	Total Recoverable Metals by ICPMS (including)	WATER - EG035T	Total Mercury by FIMS	WATER - EG093A-T	Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-T	Total Metals in Saline Water - Suite B by	WATER - EP080	BTEXN	WATER - W-03	15 Metals (NEPM Suite)
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314			✓		✓											✓
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314			✓			✓		✓		✓						✓
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314			✓		✓											✓
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN			✓			✓		✓		✓						✓
ES1406281-005	20-MAR-2014 15:00	TRIP SPIKE													✓			
ES1406281-007	20-MAR-2014 15:00	VO_QA1_200314	✓															

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T	15 Metals (Total) (NEPM)	WATER - W-18	TRH(C6 - C9)/BTEXN	WATER - W-24	TRH/BTEXN/PAH/Phenols
ES1406281-001	20-MAR-2014 14:15	VO_MW13_200314	✓				✓	
ES1406281-002	20-MAR-2014 15:08	VO_MW12_200314					✓	
ES1406281-003	20-MAR-2014 16:08	VO_MW11_200314	✓				✓	
ES1406281-004	20-MAR-2014 15:08	D01_200314_SN					✓	
ES1406281-006	20-MAR-2014 15:00	TRIP BLANK			✓			

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406495</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SO <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 02-APR-2014  <b>No. of samples received</b> : 8 <b>No. of samples analysed</b> : 8
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VH_X_MW05_240314	VH_X_MW04_240314	VH_X_MW03_240314	VH_X_MW01_240314	R01_240314_SO
24-MAR-2014 11:12	24-MAR-2014 12:31	24-MAR-2014 16:32	24-MAR-2014 15:40	24-MAR-2014 15:00	
	ES1406495-001	ES1406495-002	ES1406495-003	ES1406495-004	ES1406495-005

Compound	CAS Number	LOR	Unit	ES1406495-001	ES1406495-002	ES1406495-003	ES1406495-004	ES1406495-005
----------	------------	-----	------	---------------	---------------	---------------	---------------	---------------

### EG020F: Dissolved Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	0.002	----	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L	0.672	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	0.004	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	0.0002	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.007	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	0.022	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.173	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.023	----	----	----	----
Lead	7439-92-1	0.001	mg/L	0.016	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.083	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	----	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	----	----	----	----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	----	<0.001
Thallium	7440-28-0	0.001	mg/L	----	----	----	----	<0.001



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VH_X_MW05_240314	VH_X_MW04_240314	VH_X_MW03_240314	VH_X_MW01_240314	R01_240314_SO
				24-MAR-2014 11:12	24-MAR-2014 12:31	24-MAR-2014 16:32	24-MAR-2014 15:40	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406495-001	ES1406495-002	ES1406495-003	ES1406495-004	ES1406495-005
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<0.0001
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	----	3.9	3.8	7.0	----
Arsenic	7440-38-2	0.2	µg/L	----	5.6	3.9	10.5	----
Barium	7440-39-3	0.5	µg/L	----	1590	295	1010	----
Beryllium	7440-41-7	0.1	µg/L	----	4.3	0.7	4.0	----
Boron	7440-42-8	5	µg/L	----	27	26	29	----
Cadmium	7440-43-9	0.05	µg/L	----	0.66	0.52	0.67	----
Chromium	7440-47-3	0.2	µg/L	----	3.3	0.3	8.7	----
Cobalt	7440-48-4	0.1	µg/L	----	22.7	19.7	22.9	----
Copper	7440-50-8	0.5	µg/L	----	44.6	38.9	55.4	----
Lead	7439-92-1	0.1	µg/L	----	20.9	10.8	29.0	----
Manganese	7439-96-5	0.5	µg/L	----	310	344	260	----
Molybdenum	7439-98-7	0.1	µg/L	----	<0.1	<0.1	<0.1	----
Nickel	7440-02-0	0.5	µg/L	----	53.2	38.5	56.6	----
Thallium	7440-28-0	0.02	µg/L	----	0.16	0.27	0.16	----
Vanadium	7440-62-2	0.2	µg/L	----	0.5	0.5	0.6	----
Zinc	7440-66-6	1	µg/L	----	153	99	143	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VH_X_MW05_240314	VH_X_MW04_240314	VH_X_MW03_240314	VH_X_MW01_240314	R01_240314_SO
				24-MAR-2014 11:12	24-MAR-2014 12:31	24-MAR-2014 16:32	24-MAR-2014 15:40	24-MAR-2014 15:00
				ES1406495-001	ES1406495-002	ES1406495-003	ES1406495-004	ES1406495-005
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VH_X_MW05_240314	VH_X_MW04_240314	VH_X_MW03_240314	VH_X_MW01_240314	R01_240314_SO
				24-MAR-2014 11:12	24-MAR-2014 12:31	24-MAR-2014 16:32	24-MAR-2014 15:40	24-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406495-001	ES1406495-002	ES1406495-003	ES1406495-004	ES1406495-005
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	23.0	41.0	24.9	26.3	27.9
2-Chlorophenol-D4	93951-73-6	0.1	%	51.2	82.6	55.1	54.5	56.7
2,4,6-Tribromophenol	118-79-6	0.1	%	88.3	86.7	75.6	68.9	69.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	69.3	97.6	72.4	60.7	60.4
Anthracene-d10	1719-06-8	0.1	%	104	104	75.9	67.9	66.7
4-Terphenyl-d14	1718-51-0	0.1	%	109	111	65.4	62.2	58.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	107	103	108	106
Toluene-D8	2037-26-5	0.1	%	93.6	90.5	90.5	76.1	94.3
4-Bromofluorobenzene	460-00-4	0.1	%	84.4	81.2	83.7	72.5	88.9





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	D01_240314_SO	---	---
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1406495-006	ES1406495-007	ES1406495-008	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	---	---	<0.0001	---	---
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	---	---	4.1	---	---
Arsenic	7440-38-2	0.2	µg/L	---	---	5.8	---	---
Barium	7440-39-3	0.5	µg/L	---	---	1660	---	---
Beryllium	7440-41-7	0.1	µg/L	---	---	4.3	---	---
Boron	7440-42-8	5	µg/L	---	---	27	---	---
Cadmium	7440-43-9	0.05	µg/L	---	---	0.66	---	---
Chromium	7440-47-3	0.2	µg/L	---	---	3.2	---	---
Cobalt	7440-48-4	0.1	µg/L	---	---	23.6	---	---
Copper	7440-50-8	0.5	µg/L	---	---	44.4	---	---
Lead	7439-92-1	0.1	µg/L	---	---	20.7	---	---
Manganese	7439-96-5	0.5	µg/L	---	---	299	---	---
Molybdenum	7439-98-7	0.1	µg/L	---	---	<0.1	---	---
Nickel	7440-02-0	0.5	µg/L	---	---	55.3	---	---
Thallium	7440-28-0	0.02	µg/L	---	---	0.14	---	---
Vanadium	7440-62-2	0.2	µg/L	---	---	0.5	---	---
Zinc	7440-66-6	1	µg/L	---	---	158	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	---	---	<1.0	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	---	---	<1.0	---	---
2-Methylphenol	95-48-7	1.0	µg/L	---	---	<1.0	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	---	---	<2.0	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	---	---	<1.0	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	---	---	<1.0	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	---	---	<1.0	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	---	---	<1.0	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	---	---	<1.0	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	---	---	<1.0	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	---	---	<1.0	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	---	---	<2.0	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	---	---	<1.0	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	D01_240314_SO	---	---
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	ES1406495-006	ES1406495-007	ES1406495-008	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	---	---	<1.0	---	---
Acenaphthene	83-32-9	1.0	µg/L	---	---	<1.0	---	---
Fluorene	86-73-7	1.0	µg/L	---	---	<1.0	---	---
Phenanthrene	85-01-8	1.0	µg/L	---	---	<1.0	---	---
Anthracene	120-12-7	1.0	µg/L	---	---	<1.0	---	---
Fluoranthene	206-44-0	1.0	µg/L	---	---	<1.0	---	---
Pyrene	129-00-0	1.0	µg/L	---	---	<1.0	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	---	---	<1.0	---	---
Chrysene	218-01-9	1.0	µg/L	---	---	<1.0	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	---	---	<1.0	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	---	---	<1.0	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	---	---	<0.5	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	---	---	<1.0	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	---	---	<1.0	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	---	---	<1.0	---	---
^ Sum of polycyclic aromatic hydrocarbons	---	0.5	µg/L	---	---	<0.5	---	---
^ Benzo(a)pyrene TEQ (zero)	---	0.5	µg/L	---	---	<0.5	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	<20	---	---
C10 - C14 Fraction	---	50	µg/L	---	---	<50	---	---
C15 - C28 Fraction	---	100	µg/L	---	---	<100	---	---
C29 - C36 Fraction	---	50	µg/L	---	---	<50	---	---
^ C10 - C36 Fraction (sum)	---	50	µg/L	---	---	<50	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	<20	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	<20	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	---	---	<100	---	---
>C16 - C34 Fraction	---	100	µg/L	---	---	<100	---	---
>C34 - C40 Fraction	---	100	µg/L	---	---	<100	---	---
^ >C10 - C40 Fraction (sum)	---	100	µg/L	---	---	<100	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	---	100	µg/L	---	---	<100	---	---
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	D01_240314_SO	----	----
				24-MAR-2014 15:00	24-MAR-2014 15:00	24-MAR-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1406495-006	ES1406495-007	ES1406495-008	----	----
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	16	<1	----	----
Toluene	108-88-3	2	µg/L	<2	14	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	14	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	14	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	16	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	30	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	74	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	18	<5	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	16.1	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	32.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	53.3	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	39.7	----	----
Anthracene-d10	1719-06-8	0.1	%	----	----	55.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	58.7	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	97.6	93.1	----	----
Toluene-D8	2037-26-5	0.1	%	96.3	89.6	101	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	86.8	85.2	85.6	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406495</b>	Page	: 1 of 15
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 25-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 02-APR-2014
<b>Sampler</b>	: SO	<b>No. of samples received</b>	: 8
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 8
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### *Signatories*

Alex Rossi  
Pabi Subba  
Shobhna Chandra

#### *Position*

Organic Chemist  
Senior Organic Chemist  
Metals Coordinator

#### *Accreditation Category*

Sydney Organics  
Sydney Organics  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3366242)</b>									
ES1406496-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.054	0.053	2.6	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.051	0.051	0.0	0% - 20%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.137	0.136	0.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.026	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406519-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.074	0.074	0.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.126	0.124	1.8	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.39	0.38	0.0	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3366237)</b>									
ES1406495-005	R01_240314_SO	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3366237) - continued</b>									
ES1406495-005	R01_240314_SO	EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406825-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.199	0.202	1.6	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.009	29.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3366241)</b>									
ES1406495-001	VH_X_MW05_240314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406496-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3363125)</b>									
ES1406485-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406485-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3369212)</b>									
EP1402306-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	0.7	0.8	0.0	No Limit





Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3369212) - continued</b>									
EP1402306-001	Anonymous	EG094A-F: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	13.7	14.1	2.5	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	1.6	1.4	13.2	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	25.9	26.3	1.7	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-F: Zinc	7440-66-6	1	µg/L	<1	<1	0.0	No Limit
EG094A-F: Boron	7440-42-8	5	µg/L	255	255	0.0	0% - 20%		
ES1406495-003	VH_X_MW03_240314	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.27	0.30	11.5	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.52	0.53	0.0	0% - 50%
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.7	0.7	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	19.7	19.8	0.7	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	10.8	12.5	14.5	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	3.9	4.0	0.0	0% - 50%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.3	0.4	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	295	297	0.8	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	38.9	38.9	0.0	0% - 20%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	344	339	1.4	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	38.5	38.8	0.7	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	99	100	1.6	0% - 20%
EG094A-F: Boron	7440-42-8	5	µg/L	26	26	0.0	No Limit		
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3369213)</b>									
EP1402306-001	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
ES1406495-003	VH_X_MW03_240314	EG094B-F: Selenium	7782-49-2	0.2	µg/L	3.8	3.8	0.0	0% - 50%
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361000)</b>									
ES1406495-001	VH_X_MW05_240314	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3361000) - continued</b>									
ES1406495-001	VH_X_MW05_240314	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3361000)</b>									
ES1406495-001	VH_X_MW05_240314	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3360999)</b>									
ES1406495-001	VH_X_MW05_240314	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1406495-008	D01_240314_SO	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406495-001	VH_X_MW05_240314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3360999)</b>									
ES1406495-001	VH_X_MW05_240314	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1406495-008	D01_240314_SO	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1406495-001	VH_X_MW05_240314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1406495-001	VH_X_MW05_240314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.2	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.3	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.2	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.3	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.9	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.2	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.4	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	97.0	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.1	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.0	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	98.3	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.8	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	111	73	123	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.2	79	119	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.1	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.1	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	84	116	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	84	116	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	84	124	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	84.3	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	102	84	118	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	77	117	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	110	75	129	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241) - continued</b>								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.4	77	115
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3369212)</b>								
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	107	75	129
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	93.7	81	117
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	76.5	75	123
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	96.5	79	129
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	96.7	83	111
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	98.6	83	113
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	114	81	119
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	101	84	114
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	76.4	74	118
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	94.5	84	114
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	84.3	74	108
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	102	85	117
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	100 µg/L	80.2	74	116
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	97.9	82	114
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	98.7	83	121
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3369213)</b>								
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	100	70	122
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361000)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	53.2	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	77.6	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	63.9	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	57.5	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	76.9	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.9	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	77.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	81.6	64.3	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361000) - continued</b>								
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	70.0	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	82.2	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	95.4	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	31.5	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361000)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	72.6	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	80.3	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	75.6	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	80.8	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	76.2	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.7	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	80.1	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	79.0	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	75.0	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	76.1	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	69.3	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	83.2	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	77.7	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.5	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	72.6	61.2	117
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3361000) - continued</b>									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	69.8	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3360999)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	101	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363315)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.0	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3360999)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	91.4	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363315)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	80.8	75	127	
<b>EP080: BTEXN (QCLot: 3363315)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	96.8	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	93.8	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	100	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	107	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>								
ES1406496-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	90.7	70	130	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	97.3	70	130	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	84.4	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.8	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.4	70	130	



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242) - continued</b>							
ES1406496-002	Anonymous	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	93.1	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.3	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.4	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	78.0	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.9	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	87.9	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.7	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>							
ES1406496-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	109	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	110	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	108	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	114	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	111	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	122	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	113	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	109	70	130
EG020A-T: Zinc	7440-66-6	1 mg/L	107	70	130		
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>							
ES1406495-002	VH_X_MW04_240314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.1	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>							
ES1406485-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	# 50.5	70	130
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3369212)</b>							
EP1402306-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	117	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	113	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	74.7	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	103	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	102	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	93.1	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	95.4	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	94.1	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	96.7	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	99.4	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	101	70	130
		<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361000)</b>					





Sub-Matrix: WATER

				Matrix Spike (MS) Report					
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
								Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361000) - continued</b>									
ES1406495-003	VH_X_MW03_240314	EP075(SIM): Phenol		108-95-2	20 µg/L	40.1	20	130	
		EP075(SIM): 2-Chlorophenol		95-57-8	20 µg/L	90.8	60	130	
		EP075(SIM): 2-Nitrophenol		88-75-5	20 µg/L	65.0	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol		59-50-7	20 µg/L	77.6	70	130	
		EP075(SIM): Pentachlorophenol		87-86-5	20 µg/L	103	20	130	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361000)</b>									
ES1406495-003	VH_X_MW03_240314	EP075(SIM): Acenaphthene		83-32-9	20 µg/L	76.5	70	130	
		EP075(SIM): Pyrene		129-00-0	20 µg/L	96.0	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3360999)</b>									
ES1406495-003	VH_X_MW03_240314	EP071: C10 - C14 Fraction		----	200 µg/L	97.9	74	150	
		EP071: C15 - C28 Fraction		----	300 µg/L	101	77	153	
		EP071: C29 - C36 Fraction		----	200 µg/L	99.7	67	153	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: C6 - C9 Fraction		----	325 µg/L	113	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3360999)</b>									
ES1406495-003	VH_X_MW03_240314	EP071: >C10 - C16 Fraction		>C10_C16	250 µg/L	90.6	74	150	
		EP071: >C16 - C34 Fraction		----	350 µg/L	108	77	153	
		EP071: >C34 - C40 Fraction		----	150 µg/L	99.5	67	153	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: C6 - C10 Fraction		C6_C10	375 µg/L	118	70	130	
<b>EP080: BTEXN (QCLot: 3363315)</b>									
ES1406457-004	Anonymous	EP080: Benzene		71-43-2	25 µg/L	122	70	130	
		EP080: Toluene		108-88-3	25 µg/L	104	70	130	
		EP080: Ethylbenzene		100-41-4	25 µg/L	116	70	130	
		EP080: meta- & para-Xylene		108-38-3	25 µg/L	98.1	70	130	
				106-42-3					
		EP080: ortho-Xylene		95-47-6	25 µg/L	122	70	130	
EP080: Naphthalene		91-20-3	25 µg/L	114	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID		Client sample ID		Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
							MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3360999)</b>												



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3360999) - continued</b>											
ES1406495-003	VH_X_MW03_240314	EP071: C10 - C14 Fraction	----	200 µg/L	97.9	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	101	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	99.7	----	67	153	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3360999)</b>											
ES1406495-003	VH_X_MW03_240314	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	90.6	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	108	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	99.5	----	67	153	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3361000)</b>											
ES1406495-003	VH_X_MW03_240314	EP075(SIM): Phenol	108-95-2	20 µg/L	40.1	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	90.8	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	65.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.6	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	103	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3361000)</b>											
ES1406495-003	VH_X_MW03_240314	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	76.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	96.0	----	70	130	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3363125)</b>											
ES1406485-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	# 50.5	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363315)</b>											
ES1406457-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363315)</b>											
ES1406457-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3363315)</b>											
ES1406457-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	122	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	98.1	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	122	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	114	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>											
ES1406496-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	109	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	110	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	108	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	114	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	111	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237) - continued</b>										
ES1406496-006	Anonymous	EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	122	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	113	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	109	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>										
ES1406495-002	VH_X_MW04_240314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.1	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>										
ES1406496-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	90.7	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	97.3	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	84.4	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.8	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.4	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	93.1	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.3	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.4	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	78.0	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.9	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	87.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.7	----	70	130	----	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3369212)</b>										
EP1402306-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	117	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	113	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	74.7	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	103	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	102	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	93.1	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	95.4	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	94.1	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	96.7	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	99.4	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	101	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406495</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: SO	No. of samples received	: 8
Order number	: 0237747	No. of samples analysed	: 8
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VH_X_MW05_240314	24-MAR-2014	---	20-SEP-2014	----	31-MAR-2014	20-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_240314_SO	24-MAR-2014	31-MAR-2014	20-SEP-2014	✓	31-MAR-2014	20-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) VH_X_MW04_240314, VH_X_MW03_240314, VH_X_MW01_240314, D01_240314_SO	24-MAR-2014	---	21-APR-2014	----	01-APR-2014	21-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VH_X_MW05_240314	24-MAR-2014	---	21-APR-2014	----	01-APR-2014	21-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_240314_SO	24-MAR-2014	----	----	----	28-MAR-2014	21-APR-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) VH_X_MW04_240314, VH_X_MW03_240314, VH_X_MW01_240314, D01_240314_SO	24-MAR-2014	---	20-SEP-2014	----	01-APR-2014	20-SEP-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) VH_X_MW04_240314, VH_X_MW03_240314, VH_X_MW01_240314, D01_240314_SO	24-MAR-2014	---	20-SEP-2014	----	01-APR-2014	20-SEP-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) VH_X_MW05_240314, VH_X_MW04_240314, VH_X_MW03_240314, VH_X_MW01_240314, R01_240314_SO, D01_240314_SO	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Amber Glass Bottle - Unpreserved (EP075(SIM)) VH_X_MW05_240314, VH_X_MW04_240314, VH_X_MW03_240314, VH_X_MW01_240314, R01_240314_SO, D01_240314_SO	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VH_X_MW05_240314, VH_X_MW03_240314, R01_240314_SO,	VH_X_MW04_240314, VH_X_MW01_240314, D01_240314_SO	24-MAR-2014	28-MAR-2014	31-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VH_X_MW05_240314, VH_X_MW03_240314, R01_240314_SO, TRIP SPIKE,	VH_X_MW04_240314, VH_X_MW01_240314, TRIP BLANK, D01_240314_SO	24-MAR-2014	29-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VH_X_MW05_240314, VH_X_MW03_240314, R01_240314_SO, D01_240314_SO	VH_X_MW04_240314, VH_X_MW01_240314, TRIP BLANK,	24-MAR-2014	29-MAR-2014	07-APR-2014	✓	29-MAR-2014	07-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG035T: Total Recoverable Mercury by FIMS	ES1406485-002	Anonymous	<b>Mercury</b>	7439-97-6	50.5 %	70-130%	<b>Recovery less than lower data quality objective</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Samples Submitted</b>							
EP080S: TPH(V)/BTEX Surrogates	ES1406495-004	VH_X_MW01_240314	<b>Toluene-D8</b>	2037-26-5	76.1 %	79-131 %	<b>Recovery less than lower data quality objective</b>

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

<b>Work Order</b>	: <b>ES1406495</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747		
<b>C-O-C number</b>	: ----	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>Site</b>	: ----		
<b>Sampler</b>	: SO	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

<b>Date Samples Received</b>	: 25-MAR-2014	<b>Issue Date</b>	: 27-MAR-2014 09:35
<b>Client Requested Due Date</b>	: 02-APR-2014	<b>Scheduled Reporting Date</b>	: <b>02-APR-2014</b>

**Delivery Details**

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 3.2°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 8
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 8

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by	WATER - EG093B-F Dissolved Metals in Saline Water Suite	WATER - EP080 BTEXN	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)
ES1406495-001	24-MAR-2014 11:12	VH_X_MW05_240314	✓						✓	
ES1406495-002	24-MAR-2014 12:31	VH_X_MW04_240314			✓	✓	✓			
ES1406495-003	24-MAR-2014 16:32	VH_X_MW03_240314			✓	✓	✓			
ES1406495-004	24-MAR-2014 15:40	VH_X_MW01_240314			✓	✓	✓			
ES1406495-005	24-MAR-2014 15:00	R01_240314_SO		✓						✓
ES1406495-007	24-MAR-2014 15:00	TRIP SPIKE						✓		
ES1406495-008	24-MAR-2014 15:00	D01_240314_SO			✓	✓	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406495-001	24-MAR-2014 11:12	VH_X_MW05_240314		✓
ES1406495-002	24-MAR-2014 12:31	VH_X_MW04_240314		✓
ES1406495-003	24-MAR-2014 16:32	VH_X_MW03_240314		✓
ES1406495-004	24-MAR-2014 15:40	VH_X_MW01_240314		✓
ES1406495-005	24-MAR-2014 15:00	R01_240314_SO		✓
ES1406495-006	24-MAR-2014 15:00	TRIP BLANK	✓	
ES1406495-008	24-MAR-2014 15:00	D01_240314_SO		✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406495**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : SO</b></p>	<p><b>Page : 1 of 3</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 25-MAR-2014</b></p> <p><b>Client Requested Due Date : 02-APR-2014</b></p>	<p><b>Issue Date : 01-APR-2014 13:11</b></p> <p><b>Scheduled Reporting Date : <b>02-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.2°C - Ice present</b></p> <p><b>No. of samples received : 8</b></p> <p><b>No. of samples analysed : 8</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by	WATER - EG094B-F Dissolved Metals in fresh water Suite B by	WATER - EP080 BTEXN	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)
ES1406495-001	24-MAR-2014 11:12	VH_X_MW05_240314	✓						✓	
ES1406495-002	24-MAR-2014 12:31	VH_X_MW04_240314			✓	✓	✓			
ES1406495-003	24-MAR-2014 16:32	VH_X_MW03_240314			✓	✓	✓			
ES1406495-004	24-MAR-2014 15:40	VH_X_MW01_240314			✓	✓	✓			
ES1406495-005	24-MAR-2014 15:00	R01_240314_SO		✓						✓
ES1406495-007	24-MAR-2014 15:00	TRIP SPIKE						✓		
ES1406495-008	24-MAR-2014 15:00	D01_240314_SO			✓	✓	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXNPAH/Phenols
ES1406495-001	24-MAR-2014 11:12	VH_X_MW05_240314		✓
ES1406495-002	24-MAR-2014 12:31	VH_X_MW04_240314		✓
ES1406495-003	24-MAR-2014 16:32	VH_X_MW03_240314		✓
ES1406495-004	24-MAR-2014 15:40	VH_X_MW01_240314		✓
ES1406495-005	24-MAR-2014 15:00	R01_240314_SO		✓
ES1406495-006	24-MAR-2014 15:00	TRIP BLANK	✓	
ES1406495-008	24-MAR-2014 15:00	D01_240314_SO		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.





## *Requested Deliverables*

### **JOHN EWING**

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### **SYMPHONY DELTACOAST**

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### **THE ACCOUNTS PAYABLE**

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406496</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SN <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 25-MAR-2014 <b>Issue Date</b> : 02-APR-2014  <b>No. of samples received</b> : 10 <b>No. of samples analysed</b> : 10
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG020T: Positive Chromium result for sample R01\_230314\_SN has been confirmed by repeat analysis.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VP_MW10_230314	VN_MW03_230314	D01_230314_SN	VN_MW08_230314	VN_MW09_230314
				23-MAR-2014 08:50	23-MAR-2014 09:40	23-MAR-2014 09:00	23-MAR-2014 10:36	23-MAR-2014 11:14
				ES1406496-001	ES1406496-002	ES1406496-003	ES1406496-004	ES1406496-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.001	<0.001	<0.001
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	7440-39-3	0.001	mg/L	0.054	0.113	0.114	0.066	0.081
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.003	0.010	0.010	0.001	0.007
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.002	0.007	0.004	0.004
Manganese	7439-96-5	0.001	mg/L	0.137	0.735	0.752	0.049	0.040
Nickel	7440-02-0	0.001	mg/L	0.002	0.013	0.013	0.001	0.004
Lead	7439-92-1	0.001	mg/L	0.051	0.026	0.024	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.025	0.020	0.021	0.016	0.026
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VP_MW10_230314	VN_MW03_230314	D01_230314_SN	VN_MW08_230314	VN_MW09_230314
				23-MAR-2014 08:50	23-MAR-2014 09:40	23-MAR-2014 09:00	23-MAR-2014 10:36	23-MAR-2014 11:14
Compound	CAS Number	LOR	Unit	ES1406496-001	ES1406496-002	ES1406496-003	ES1406496-004	ES1406496-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VP_MW10_230314	VN_MW03_230314	D01_230314_SN	VN_MW08_230314	VN_MW09_230314
				23-MAR-2014 08:50	23-MAR-2014 09:40	23-MAR-2014 09:00	23-MAR-2014 10:36	23-MAR-2014 11:14
Compound	CAS Number	LOR	Unit	ES1406496-001	ES1406496-002	ES1406496-003	ES1406496-004	ES1406496-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	25.2	34.4	38.2	41.4	40.3
2-Chlorophenol-D4	93951-73-6	0.1	%	35.7	72.3	69.4	78.0	79.6
2,4,6-Tribromophenol	118-79-6	0.1	%	82.9	91.4	83.3	89.8	90.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	48.0	69.7	66.1	71.6	71.5
Anthracene-d10	1719-06-8	0.1	%	70.4	78.3	71.2	77.8	77.6
4-Terphenyl-d14	1718-51-0	0.1	%	66.8	69.6	63.3	67.5	66.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.8	88.7	87.0	86.6	101
Toluene-D8	2037-26-5	0.1	%	92.7	91.0	121	119	111
4-Bromofluorobenzene	460-00-4	0.1	%	89.2	92.8	89.2	89.3	106



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	R01_230314_SN	VN_MW07_230314	VN_MW06_230314	VN_MW12_230314	VN_MW05_230314
				23-MAR-2014 10:00	23-MAR-2014 12:10	23-MAR-2014 13:30	23-MAR-2014 14:24	23-MAR-2014 15:00
				ES1406496-006	ES1406496-007	ES1406496-008	ES1406496-009	ES1406496-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	<0.001	<0.001	<0.001
Boron	7440-42-8	0.05	mg/L	----	<b>0.09</b>	<0.05	<0.05	<0.05
Barium	7440-39-3	0.001	mg/L	----	<b>0.133</b>	<b>0.396</b>	<b>0.017</b>	<b>0.030</b>
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	<b>0.005</b>	<b>0.010</b>	<0.001	<b>0.003</b>
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	<b>0.003</b>	<b>0.003</b>	<b>0.006</b>	<b>0.003</b>
Manganese	7439-96-5	0.001	mg/L	----	<b>0.868</b>	<b>2.50</b>	<b>0.020</b>	<b>0.066</b>
Nickel	7440-02-0	0.001	mg/L	----	<b>0.003</b>	<b>0.003</b>	<b>0.002</b>	<b>0.003</b>
Lead	7439-92-1	0.001	mg/L	----	<b>0.006</b>	<b>0.016</b>	<0.001	<b>0.010</b>
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	----	<b>0.024</b>	<b>0.022</b>	<b>0.020</b>	<b>0.023</b>
Molybdenum	7439-98-7	0.001	mg/L	----	<0.001	<b>0.001</b>	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	----	<0.001	<0.001	<0.001	<0.001
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L	<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<b>0.006</b>	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	----	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	----	----	----	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_230314_SN	VN_MW07_230314	VN_MW06_230314	VN_MW12_230314	VN_MW05_230314
				23-MAR-2014 10:00	23-MAR-2014 12:10	23-MAR-2014 13:30	23-MAR-2014 14:24	23-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406496-006	ES1406496-007	ES1406496-008	ES1406496-009	ES1406496-010
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_230314_SN	VN_MW07_230314	VN_MW06_230314	VN_MW12_230314	VN_MW05_230314
				23-MAR-2014 10:00	23-MAR-2014 12:10	23-MAR-2014 13:30	23-MAR-2014 14:24	23-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406496-006	ES1406496-007	ES1406496-008	ES1406496-009	ES1406496-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	39.6	40.7	39.2	31.7	38.0
2-Chlorophenol-D4	93951-73-6	0.1	%	73.4	76.2	73.6	59.4	75.2
2,4,6-Tribromophenol	118-79-6	0.1	%	84.9	87.9	82.9	84.8	93.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	69.1	68.0	65.2	55.6	69.9
Anthracene-d10	1719-06-8	0.1	%	77.7	76.5	72.7	74.0	83.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	R01_230314_SN	VN_MW07_230314	VN_MW06_230314	VN_MW12_230314	VN_MW05_230314
Client sampling date / time	23-MAR-2014 10:00	23-MAR-2014 12:10	23-MAR-2014 13:30	23-MAR-2014 14:24	23-MAR-2014 15:00
	ES1406496-006	ES1406496-007	ES1406496-008	ES1406496-009	ES1406496-010

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406496-006	ES1406496-007	ES1406496-008	ES1406496-009	ES1406496-010
<b>EP075(SIM)T: PAH Surrogates - Continued</b>								
4-Terphenyl-d14	1718-51-0	0.1	%	67.3	66.2	62.6	67.2	73.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	77.6	91.2	87.9	92.7	87.8
Toluene-D8	2037-26-5	0.1	%	103	120	94.7	94.4	92.7
4-Bromofluorobenzene	460-00-4	0.1	%	74.7	93.4	93.7	94.5	92.0



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406496</b>	Page	: 1 of 11
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 25-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 02-APR-2014
<b>Sampler</b>	: SN	<b>No. of samples received</b>	: 10
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 10
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3366242)</b>									
ES1406496-001	VP_MW10_230314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.054	0.053	2.6	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.051	0.051	0.0	0% - 20%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.137	0.136	0.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.026	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406519-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.074	0.074	0.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.126	0.124	1.8	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.39	0.38	0.0	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3366237)</b>									
ES1406495-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3366237) - continued</b>									
ES1406495-005	Anonymous	EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406825-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.199	0.202	1.6	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.009	29.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3366241)</b>									
ES1406495-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406496-007	VN_MW07_230314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3360842)</b>									
ES1406367-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406544-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3363321)</b>									
ES1406496-001	VP_MW10_230314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406534-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3363321)</b>									
ES1406496-001	VP_MW10_230314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3363321) - continued</b>									
ES1406534-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3363321)</b>									
ES1406496-001	VP_MW10_230314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1406534-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.2	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.3	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.2	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.3	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.9	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.2	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.4	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	97.0	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.1	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.0	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	98.3	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.8	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	111	73	123	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.2	79	119	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.1	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.1	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	84	116	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	84	116	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	84	124	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	84.3	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	102	84	118	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	77	117	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	110	75	129	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241) - continued</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360842)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	96.1	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3360979)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	46.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	75.6	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	69.5	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	73.0	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	86.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	68.9	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	70.3	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.2	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	82.4	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	76.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	79.7	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	82.9	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3360979)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	68.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	81.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	78.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3360979) - continued</b>									
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	78.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	91.9	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	91.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	87.7	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	90.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	88.3	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	85.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	89.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	85.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	84.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	87.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3360978)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.5	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	98.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	100	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363321)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.2	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3360978)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	95.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	98.6	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363321)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.4	75	127	
<b>EP080: BTEXN (QCLot: 3363321)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	65	129	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
<b>EP080: BTEXN (QCLot: 3363321) - continued</b>								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.9	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	89.8	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	89.9	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.0	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>							
ES1406496-002	VN_MW03_230314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	90.7	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	97.3	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	84.4	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.8	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.4	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	93.1	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.3	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.4	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	78.0	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.9	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	87.9	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.7	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>							
ES1406496-006	R01_230314_SN	EG020A-T: Arsenic	7440-38-2	1 mg/L	109	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	110	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	108	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	114	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	111	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	122	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	113	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	109	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>								
ES1406495-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.1	70	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360842)</b>								
ES1406367-009	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	71.9	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363321)</b>								
ES1406496-001	VP_MW10_230314	EP080: C6 - C9 Fraction	----	325 µg/L	88.2	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363321)</b>								
ES1406496-001	VP_MW10_230314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.2	70	130	
<b>EP080: BTEXN (QCLot: 3363321)</b>								
ES1406496-001	VP_MW10_230314	EP080: Benzene	71-43-2	25 µg/L	78.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	96.1	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	83.7	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	85.8	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	90.8	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3360842)</b>											
ES1406367-009	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	71.9	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363321)</b>											
ES1406496-001	VP_MW10_230314	EP080: C6 - C9 Fraction	----	325 µg/L	88.2	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363321)</b>											
ES1406496-001	VP_MW10_230314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.2	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3363321)</b>											
ES1406496-001	VP_MW10_230314	EP080: Benzene	71-43-2	25 µg/L	78.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	96.1	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	83.7	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	85.8	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	25 µg/L	90.8	----	70	130	----	----		



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3366237)</b>										
ES1406496-006	R01_230314_SN	EG020A-T: Arsenic	7440-38-2	1 mg/L	109	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	110	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	108	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	112	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	114	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	111	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	110	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	122	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	113	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	109	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3366241)</b>										
ES1406495-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.1	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3366242)</b>										
ES1406496-002	VN_MW03_230314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	90.7	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	97.3	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	84.4	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.8	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.4	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	93.1	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.3	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.4	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	78.0	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.9	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	87.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.7	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406496</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 25-MAR-2014
C-O-C number	: ----	Issue Date	: 02-APR-2014
Sampler	: SN	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 10
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VP_MW10_230314, VN_MW03_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW06_230314, VN_MW12_230314, VN_MW05_230314	23-MAR-2014	---	19-SEP-2014	----	31-MAR-2014	19-SEP-2014	✓
<b>Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-F)</b> VN_MW08_230314	23-MAR-2014	---	19-SEP-2014	----	31-MAR-2014	19-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_230314_SN	23-MAR-2014	31-MAR-2014	19-SEP-2014	✓	31-MAR-2014	19-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VP_MW10_230314, VN_MW03_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW06_230314, VN_MW12_230314, VN_MW05_230314	23-MAR-2014	---	20-APR-2014	----	01-APR-2014	20-APR-2014	✓
<b>Clear Plastic Bottle - Nitric Acid; Unspecified (EG035F)</b> VN_MW08_230314	23-MAR-2014	---	06-APR-2014	----	01-APR-2014	06-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_230314_SN	23-MAR-2014	----	----	----	27-MAR-2014	20-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VP_MW10_230314, VN_MW03_230314, D01_230314_SN, VN_MW08_230314, VN_MW09_230314, R01_230314_SN, VN_MW07_230314, VN_MW06_230314, VN_MW12_230314, VN_MW05_230314	23-MAR-2014	28-MAR-2014	30-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VP_MW10_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW12_230314,	VN_MW03_230314, VN_MW08_230314, R01_230314_SN, VN_MW06_230314, VN_MW05_230314	23-MAR-2014	28-MAR-2014	30-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VP_MW10_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW12_230314,	VN_MW03_230314, VN_MW08_230314, R01_230314_SN, VN_MW06_230314, VN_MW05_230314	23-MAR-2014	28-MAR-2014	30-MAR-2014	✓	29-MAR-2014	07-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VP_MW10_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW12_230314,	VN_MW03_230314, VN_MW08_230314, R01_230314_SN, VN_MW06_230314, VN_MW05_230314	23-MAR-2014	29-MAR-2014	06-APR-2014	✓	29-MAR-2014	06-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VP_MW10_230314, D01_230314_SN, VN_MW09_230314, VN_MW07_230314, VN_MW12_230314,	VN_MW03_230314, VN_MW08_230314, R01_230314_SN, VN_MW06_230314, VN_MW05_230314	23-MAR-2014	29-MAR-2014	06-APR-2014	✓	29-MAR-2014	06-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### **Regular Sample Surrogates**

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1406496</b>		
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b> : Environmental Division Sydney	
<b>Contact</b> : JOHN EWING	<b>Contact</b> : Barbara Hanna	
<b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164	
<b>E-mail</b> : john.ewing@erm.com	<b>E-mail</b> : Barbara.Hanna@alsglobal.com	
<b>Telephone</b> : +61 02 8584 8888	<b>Telephone</b> : +61 2 8784 8555	
<b>Facsimile</b> : +61 02 8584 8800	<b>Facsimile</b> : +61 2 8784 8555	
<b>Project</b> : VALES POINT POWER STATION	<b>Page</b> : 1 of 3	
<b>Order number</b> : 0237747		
<b>C-O-C number</b> : ----	<b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)	
<b>Site</b> : ----		
<b>Sampler</b> : SN	<b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement	

#### Dates

Date Samples Received : 25-MAR-2014	Issue Date : 26-MAR-2014 17:11
Client Requested Due Date : 02-APR-2014	Scheduled Reporting Date : <b>02-APR-2014</b>

#### Delivery Details

Mode of Delivery : Carrier	Temperature : 3.2°C - Ice present
No. of coolers/boxes : 1 HARD	No. of samples received : 10
Security Seal : Intact.	No. of samples analysed : 10

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
<b>EG020A-F : Dissolved Metals by ICP-MS - Suite A</b>		
VN_MW08_230314	- Clear Plastic Bottle - Nitric Acid; Unspecified	- Clear Plastic Bottle - Nitric Acid; Filtered
<b>EG035F : Dissolved Mercury by FIMS</b>		
VN_MW08_230314	- Clear Plastic Bottle - Nitric Acid; Unspecified	- Clear Plastic Bottle - Nitric Acid; Filtered

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including 15 Metals (NEPM Suite))	WATER - W-03 15 Metals (Total) (NEPM)	WATER - W-24 TRHIBTEXN/PAH/Phenols
ES1406496-001	23-MAR-2014 08:50	VP_MW10_230314	✓		✓	✓
ES1406496-002	23-MAR-2014 09:40	VN_MW03_230314	✓		✓	✓
ES1406496-003	23-MAR-2014 09:00	SN_D01_230314_SN	✓		✓	✓
ES1406496-004	23-MAR-2014 10:36	VN_MW08_230314	✓		✓	✓
ES1406496-005	23-MAR-2014 11:14	VN_MW09_230314	✓		✓	✓
ES1406496-006	23-MAR-2014 10:00	SN_R01_230314_SN		✓		✓
ES1406496-007	23-MAR-2014 12:10	VN_MW07_230314	✓		✓	✓
ES1406496-008	23-MAR-2014 13:30	VN_MW06_230314	✓		✓	✓
ES1406496-009	23-MAR-2014 14:24	VN_MW12_230314	✓		✓	✓
ES1406496-010	23-MAR-2014 15:00	VN_MW05_230314	✓		✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1406496</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 3
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: SN		

#### Dates

<b>Date Samples Received</b>	: 25-MAR-2014	<b>Issue Date</b>	: 31-MAR-2014 13:21
<b>Client Requested Due Date</b>	: 02-APR-2014	<b>Scheduled Reporting Date</b>	: <b>02-APR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	: Carrier	<b>Temperature</b>	: 3.2°C - Ice present
<b>No. of coolers/boxes</b>	: 1 HARD	<b>No. of samples received</b>	: 10
<b>Security Seal</b>	: Intact.	<b>No. of samples analysed</b>	: 10

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method	Sample Container Received	Preferred Sample Container for Analysis
<b>EG020A-F : Dissolved Metals by ICP-MS - Suite A</b>		
<b>Client sample ID</b>		
VN_MW08_230314	- Clear Plastic Bottle - Nitric Acid; Unspecified	- Clear Plastic Bottle - Nitric Acid; Filtered
<b>EG035F : Dissolved Mercury by FIMS</b>		
<b>Client sample ID</b>		
VN_MW08_230314	- Clear Plastic Bottle - Nitric Acid; Unspecified	- Clear Plastic Bottle - Nitric Acid; Filtered

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406496-001	23-MAR-2014 08:50	VP_MW10_230314	✓		✓		✓
ES1406496-002	23-MAR-2014 09:40	VN_MW03_230314	✓		✓		✓
ES1406496-003	23-MAR-2014 09:00	D01_230314_SN	✓		✓		✓
ES1406496-004	23-MAR-2014 10:36	VN_MW08_230314	✓		✓		✓
ES1406496-005	23-MAR-2014 11:14	VN_MW09_230314	✓		✓		✓
ES1406496-006	23-MAR-2014 10:00	R01_230314_SN		✓		✓	✓
ES1406496-007	23-MAR-2014 12:10	VN_MW07_230314	✓		✓		✓
ES1406496-008	23-MAR-2014 13:30	VN_MW06_230314	✓		✓		✓
ES1406496-009	23-MAR-2014 14:24	VN_MW12_230314	✓		✓		✓
ES1406496-010	23-MAR-2014 15:00	VN_MW05_230314	✓		✓		✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**ALS Environmental**  
 CHAIN OF CUSTODY  
 ALS Laboratory: please tick →

**DADELADE 21** Burra Road, Pterakia SA 5095  
 Ph: 08 8550 0800 E: ade@als.com.au

**CHURCHMAN 32** Street, Stafford QLD 4053  
 Ph: 07 3253 7222 E: sam@als.com.au

**DESLADSTONE 48** Callernish Drive, Clifton QLD 4880  
 Ph: 07 4717 8600 E: gradstone@als.com.au

**DIACKAY 78** Harbour Road, Mackay QLD 4740  
 Ph: 07 4914 0177 E: mackay@als.com.au

**DIMELBOURNE 24** Westall Road, Springfield VIC 3171  
 Ph: 03 8549 9600 E: melb@als.com.au

**EMULGEE 27** Sydney Road, Mulgoe NSW 2880  
 Ph: 02 8372 6785 E: mulgoe@als.com.au

**DINENCASTLE 5** Ross Gum Road, Warabook NSW 2304  
 Ph: 02 4988 9433 E: warabook@als.com.au

**DINOVRA 473** Geary Place, North Nowra NSW 2541  
 Ph: 02 4422 2063 E: nowra@als.com.au

**DIRPETH 10** Head Way, Malaga WA 6090  
 Ph: 08 9209 7655 E: samples\_perth@als.com.au

**DISYONEY 277** 286 Woodpark Road, Smithfield NSW 2164  
 Ph: 02 8784 8555 E: samples\_sydney@als.com.au

**DUNNINVILLE 74** 15 Deama Court, Brisbane QLD 4169  
 Ph: 07 4780 0800 E: brunswick@als.com.au

**DWILLONGONG 99** Kenny Street, Wollongong NSW 2500  
 Ph: 02 4225 3125 E: portembla@als.com.au

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALLES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** SURESH NUTHALA PATI  
**SAMPLER MOBILE:**  
**COC emailed to ALS?** ( YES / NO )  
**Email Reports to** (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com  
**Email Invoice to** (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

**TURNAROUND REQUIREMENTS:**  Standard TAT (List due date);  Non Standard or urgent TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

**ALS QUOTE NO.:**

**CONTACT PH:** 0401 776 290

**RECEIVED BY:** SURESH NUTHALA PATI  
**DATE/TIME:** 23.03.14

**RELINQUISHED BY:** SURESH NUTHALA PATI  
**DATE/TIME:** 25/3/14 1900

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (if filtered bottle required).	Additional Information
1	UN-M1010-230314	23-03-14 8:50	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific CC analysis etc.
2	UN-M1013-230314	23-03-14 9:40	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
3	UN-D01-230314-SN	23-03-14 9:00	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
4	UN-M1008-230314	23-03-14 10:36	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
5	UN-M1009-230314	23-03-14 11:14	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
6	UN-R01-230314-SN	23-03-14 10:00	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
7	UN-M1007-230314	23-03-14 02:10	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
8	UN-M1006-230314	23-03-14 13:30	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
9	UN-M1012-230314	23-03-14 14:24	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
10	UN-M1005-230314	23-03-14 15:00	(W)	N, AG, VS	4	8 METALS (W-2) 13 METALS (W-3) + B, Mo, Ti, Se PHENOLS (W-24) THBTEX/PAH VOC PCB NT-1 (Ca, Mg, Na, K) NT-2 (Alk, SO4, Cl) PFOS/PFOA Ultra Trace PAH Ultra Trace Metals	
	TRP SPICE	23-03-14	(W)	VS	1		
	TRP BLANK	23-03-14	(W)	VS	1		
<b>TOTAL</b>					<b>40</b>		

Environmental Division  
 Sydney  
 Work Order  
**ES1406496**



Telephone : +61-2-8784 8555

PHYSIEX ONLY  
 PHASTEN ONLY

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial; HCl Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; SF = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

*[Handwritten signature]*

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406590</b>	Page	: 1 of 44
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Site	: ----	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1406589#2. Confirmed by reanalysis**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**
- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	----	----	----	----	13.5
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	<5
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	----	----	----	----	10
Copper	7440-50-8	5	mg/kg	----	----	----	----	<5
Lead	7439-92-1	5	mg/kg	----	----	----	----	<5
Nickel	7440-02-0	2	mg/kg	----	----	----	----	<2
Zinc	7440-66-6	5	mg/kg	----	----	----	----	<5
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	<0.1
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	----	----	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	----	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	----	<b>0.6</b>
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	----	<b>1.2</b>
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<b>61</b>	<b>55</b>	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<b>69</b>	<b>63</b>	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<b>41</b>	<b>40</b>	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	----	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<b>0.5</b>	<b>0.4</b>	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<b>14.5</b>	<b>10.9</b>	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<b>1.6</b>	<b>1.4</b>	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<b>8.5</b>	<b>7.3</b>	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<b>3.2</b>	<b>2.9</b>	<0.5	<0.5	<0.5





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS5	TS7	TB4	TB6	VL_MW02_2.0
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-014	ES1406590-015	ES1406590-016	ES1406590-017	ES1406590-030
<b>EP080: BTEXN - Continued</b>								
^ Sum of BTEX	----	0.2	mg/kg	28.3	22.9	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	11.7	10.2	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	----	----	86.0
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	----	87.3
2.4.6-Tribromophenol	118-79-6	0.1	%	----	----	----	----	95.7
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	----	93.2
Anthracene-d10	1719-06-8	0.1	%	----	----	----	----	97.2
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	----	96.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	109	96.3	118	99.2	101
Toluene-D8	2037-26-5	0.1	%	107	88.7	120	99.2	102
4-Bromofluorobenzene	460-00-4	0.1	%	107	91.2	113	91.0	96.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EA002 : pH (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	----	3.2
<b>EA032: Electrical Conductivity (saturated paste)</b>								
Electrical Conductivity (Saturated Paste)	----	1	µS/cm	----	127	----	----	----
<b>EA055: Moisture Content</b>								
Moisture Content (dried @ 103°C)	----	1.0	%	12.9	14.3	10.1	12.7	10.8
<b>ED007: Exchangeable Cations</b>								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	----	0.3
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	----	0.6
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	----	<0.1
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	----	0.1
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	----	1.0
Exchangeable Aluminium	----	0.1	meq/100g	----	----	----	----	<0.1
<b>EG005T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	3	3	<2	14
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	6
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	9
Nickel	7440-02-0	2	mg/kg	2	<2	<2	<2	17
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	47
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
				ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	62.9	62.5	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	120	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	88.7	90.5	92.0	94.8	94.4
2-Chlorophenol-D4	93951-73-6	0.1	%	89.5	89.9	93.3	97.4	98.2
2,4,6-Tribromophenol	118-79-6	0.1	%	99.2	99.1	104	109	105
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	94.0	94.7	95.4	102	102
Anthracene-d10	1719-06-8	0.1	%	94.5	92.9	97.9	106	104
4-Terphenyl-d14	1718-51-0	0.1	%	97.1	95.5	97.3	104	103



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				VB_MW05_2.0	VM_MW04_3.0	VU_MW12_3.2	VU_MW12_4.1	VU_MW10_2.2
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 12:00	25-MAR-2014 12:30	25-MAR-2014 17:00
Compound	CAS Number	LOR	Unit	ES1406590-031	ES1406590-032	ES1406590-034	ES1406590-035	ES1406590-036
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	103	99.1	104	109
Toluene-D8	2037-26-5	0.1	%	117	104	100	102	110
4-Bromofluorobenzene	460-00-4	0.1	%	113	99.6	97.7	94.7	99.3



## Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Client sample ID

Client sampling date / time

				TSC-5	TSC-7	----	----	----
				25-MAR-2014 15:00	25-MAR-2014 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1406590-037	ES1406590-038	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>C6 - C9 Fraction</b>	----	10	mg/kg	<b>64</b>	<b>61</b>	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>C6 - C10 Fraction</b>	C6_C10	10	mg/kg	<b>72</b>	<b>69</b>	----	----	----
<b>C6 - C10 Fraction minus BTEX (F1)</b>	C6_C10-BTEX	10	mg/kg	<b>43</b>	<b>41</b>	----	----	----
<b>EP080: BTEXN</b>								
<b>Benzene</b>	71-43-2	0.2	mg/kg	<b>0.5</b>	<b>0.5</b>	----	----	----
<b>Toluene</b>	108-88-3	0.5	mg/kg	<b>14.9</b>	<b>14.5</b>	----	----	----
<b>Ethylbenzene</b>	100-41-4	0.5	mg/kg	<b>1.7</b>	<b>1.6</b>	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	0.5	mg/kg	<b>8.5</b>	<b>8.3</b>	----	----	----
<b>ortho-Xylene</b>	95-47-6	0.5	mg/kg	<b>3.2</b>	<b>3.2</b>	----	----	----
<b>Sum of BTEX</b>	----	0.2	mg/kg	<b>28.8</b>	<b>28.1</b>	----	----	----
<b>Total Xylenes</b>	1330-20-7	0.5	mg/kg	<b>11.7</b>	<b>11.5</b>	----	----	----
<b>Naphthalene</b>	91-20-3	1	mg/kg	<b>&lt;1</b>	<b>&lt;1</b>	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>108</b>	<b>105</b>	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>105</b>	<b>102</b>	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>104</b>	<b>104</b>	----	----	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
				25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
				ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<b>0.06</b>	<b>0.06</b>	----	----
Barium	7440-39-3	0.001	mg/L	<b>0.044</b>	<b>0.060</b>	<b>0.060</b>	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0001</b>	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	<b>0.002</b>	<0.001	<0.001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	<b>0.003</b>	<b>0.003</b>	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	<b>0.056</b>	<b>0.073</b>	<b>0.077</b>	----	----
Nickel	7440-02-0	0.001	mg/L	<b>0.004</b>	<b>0.001</b>	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<b>0.008</b>	<b>0.007</b>	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	<b>0.025</b>	<b>0.013</b>	<0.005	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<0.0001
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	----	----	----	<b>276</b>	----
Arsenic	7440-38-2	0.5	µg/L	----	----	----	<b>184</b>	----
Barium	7440-39-3	1	µg/L	----	----	----	<b>82</b>	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	<b>13.9</b>	----
Boron	7440-42-8	100	µg/L	----	----	----	<b>1340</b>	----
Cadmium	7440-43-9	0.2	µg/L	----	----	----	<b>0.5</b>	----
Chromium	7440-47-3	0.5	µg/L	----	----	----	<b>2.5</b>	----
Cobalt	7440-48-4	0.2	µg/L	----	----	----	<b>100</b>	----
Copper	7440-50-8	1	µg/L	----	----	----	<b>155</b>	----
Lead	7439-92-1	0.2	µg/L	----	----	----	<b>183</b>	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	<b>2650</b>	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	<0.1	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

### EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
Nickel	7440-02-0	0.5	µg/L	----	----	----	133	----
Thallium	7440-28-0	0.1	µg/L	----	----	----	0.6	----
Vanadium	7440-62-2	0.5	µg/L	----	----	----	3.7	----
Zinc	7440-66-6	5	µg/L	----	----	----	1200	----

### EG093T: Total Metals in Saline Water by ORC-ICPMS

Selenium	7782-49-2	2	µg/L	----	----	----	----	8
Arsenic	7440-38-2	0.5	µg/L	----	----	----	----	13.3
Barium	7440-39-3	1	µg/L	----	----	----	----	175
Beryllium	7440-41-7	0.1	µg/L	----	----	----	----	0.1
Boron	7440-42-8	100	µg/L	----	----	----	----	137
Cadmium	7440-43-9	0.2	µg/L	----	----	----	----	<0.2
Chromium	7440-47-3	0.5	µg/L	----	----	----	----	0.8
Cobalt	7440-48-4	0.2	µg/L	----	----	----	----	31.6
Copper	7440-50-8	1	µg/L	----	----	----	----	<1
Lead	7439-92-1	0.2	µg/L	----	----	----	----	1.9
Manganese	7439-96-5	0.5	µg/L	----	----	----	----	1880
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	----	0.2
Nickel	7440-02-0	0.5	µg/L	----	----	----	----	35.9
Thallium	7440-28-0	0.1	µg/L	----	----	----	----	<0.1
Vanadium	7440-62-2	0.5	µg/L	----	----	----	----	2.6
Zinc	7440-66-6	5	µg/L	----	----	----	----	29

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

### EP075(SIM)A: Phenolic Compounds - Continued

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>Naphthalene</b>	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Acenaphthylene</b>	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Acenaphthene</b>	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Fluorene</b>	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Phenanthrene</b>	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Anthracene</b>	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Fluoranthene</b>	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Pyrene</b>	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Benz(a)anthracene</b>	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Chrysene</b>	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Benzo(b)fluoranthene</b>	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Benzo(k)fluoranthene</b>	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Benzo(a)pyrene</b>	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
<b>Indeno(1.2.3.cd)pyrene</b>	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Dibenz(a,h)anthracene</b>	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
<b>Benzo(g,h,i)perylene</b>	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ <b>Sum of polycyclic aromatic hydrocarbons</b>	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ <b>Benzo(a)pyrene TEQ (zero)</b>	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----

### EP080/071: Total Petroleum Hydrocarbons

<b>C6 - C9 Fraction</b>	----	20	µg/L	<20	<20	<20	<20	<20
<b>C10 - C14 Fraction</b>	----	50	µg/L	<50	<50	<50	<50	<50
<b>C15 - C28 Fraction</b>	----	100	µg/L	<100	<100	<100	<100	<100
<b>C29 - C36 Fraction</b>	----	50	µg/L	<50	<50	<50	<50	<50
^ <b>C10 - C36 Fraction (sum)</b>	----	50	µg/L	<50	<50	<50	<50	<50

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

<b>C6 - C10 Fraction</b>	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ <b>C6 - C10 Fraction minus BTEX (F1)</b>	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
<b>&gt;C10 - C16 Fraction</b>	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
<b>&gt;C16 - C34 Fraction</b>	----	100	µg/L	<100	<100	<100	<100	<100
<b>&gt;C34 - C40 Fraction</b>	----	100	µg/L	<100	<100	<100	<100	<100
^ <b>&gt;C10 - C40 Fraction (sum)</b>	----	100	µg/L	<100	<100	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
				25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	----	----	----	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	----	----	----	<0.1	<0.1
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	----	----	----	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	----	----	----	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	----	----	----	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	----	----	----	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	----	----	----	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	----	----	----	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	----	----	----	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	----	----	----	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	----	----	----	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	----	----	----	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	----	----	----	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	----	----	----	<0.1	<0.1
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	----	----	----	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	----	----	----	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	----	----	----	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	----	----	----	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	----	----	----	<0.1	<0.1



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VN_MW01_250314	VN_MW02_250314	D01_250314_SN	VO_MW04_250314	VO_MW03_250314
Client sampling date / time	25-MAR-2014 08:35	25-MAR-2014 09:12	25-MAR-2014 09:00	25-MAR-2014 11:34	27-MAR-2014 15:00
	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005

Compound	CAS Number	LOR	Unit	ES1406590-001	ES1406590-002	ES1406590-003	ES1406590-004	ES1406590-005
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Pyrene	129-00-0	0.1	µg/L	----	----	----	<0.1	<0.1
^ Sum of PAHs	----	0.05	µg/L	----	----	----	<0.05	<0.05
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	----	----	----	<0.05	<0.05
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	21.4	16.0	19.7	23.8	20.0
2-Chlorophenol-D4	93951-73-6	0.1	%	54.6	41.1	52.0	57.5	45.0
2.4.6-Tribromophenol	118-79-6	0.1	%	67.6	55.7	59.4	67.0	65.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	76.4	63.5	74.2	75.9	60.4
Anthracene-d10	1719-06-8	0.1	%	72.7	68.8	69.2	74.2	67.0
4-Terphenyl-d14	1718-51-0	0.1	%	67.2	67.2	66.4	70.5	62.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	90.7	119	108	98.1	96.0
Toluene-D8	2037-26-5	0.1	%	95.2	95.1	98.8	96.9	99.7
4-Bromofluorobenzene	460-00-4	0.1	%	91.6	96.8	95.9	89.5	83.0
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	77.0	72.1
Anthracene-d10	1719-06-8	0.1	%	----	----	----	84.5	85.5
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	87.7	91.4



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
				ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	0.005	0.001	<0.001	----
Boron	7440-42-8	0.05	mg/L	----	0.07	<0.05	0.08	----
Barium	7440-39-3	0.001	mg/L	----	0.126	0.066	0.070	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	----	0.011	0.005	0.004	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	0.002	0.003	0.002	----
Manganese	7439-96-5	0.001	mg/L	----	0.392	0.145	0.190	----
Nickel	7440-02-0	0.001	mg/L	----	0.004	0.003	0.004	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	0.008	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	<0.01	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	<0.01	----
Zinc	7440-66-6	0.005	mg/L	----	0.050	0.025	0.038	----
Molybdenum	7439-98-7	0.001	mg/L	----	0.001	<0.001	<0.001	----
Thallium	7440-28-0	0.001	mg/L	----	<0.001	<0.001	<0.001	----
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	----	<0.001
Thallium	7440-28-0	0.001	mg/L	----	----	----	----	<0.001



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	<0.0001
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	3	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L	11.8	----	----	----	----
Barium	7440-39-3	1	µg/L	93	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	----	----	----	----
Boron	7440-42-8	100	µg/L	1300	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	----	----	----	----
Chromium	7440-47-3	0.5	µg/L	2.1	----	----	----	----
Cobalt	7440-48-4	0.2	µg/L	1.1	----	----	----	----
Copper	7440-50-8	1	µg/L	<1	----	----	----	----
Lead	7439-92-1	0.2	µg/L	<0.2	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	2540	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	1.6	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	0.8	----	----	----	----
Thallium	7440-28-0	0.1	µg/L	<0.1	----	----	----	----
Vanadium	7440-62-2	0.5	µg/L	3.2	----	----	----	----
Zinc	7440-66-6	5	µg/L	11	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
				25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	----	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	----	----	----	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	----	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	----	----	----	----
Anthracene	120-12-7	0.1	µg/L	<0.1	----	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	----	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	----	----	----	----
Chrysene	218-01-9	0.1	µg/L	<0.1	----	----	----	----
Coronene	191-07-1	0.1	µg/L	<0.1	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	----	----	----	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	----	----	----	----
Fluorene	86-73-7	0.1	µg/L	<0.1	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	----	----	----	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	----	----	----	----
Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VO_MW02_250314	VF_MW02_250314	VF_MW01_250314	VF_MW03_250314	R01_250314_SN
Client sampling date / time	25-MAR-2014 13:16	25-MAR-2014 15:50	25-MAR-2014 16:22	25-MAR-2014 16:53	25-MAR-2014 15:00
Compound	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1406590-006	ES1406590-007	ES1406590-008	ES1406590-009	ES1406590-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	20.3	20.4	17.4	16.1	15.6
2-Chlorophenol-D4	93951-73-6	0.1	%	49.3	52.0	45.9	35.4	40.5
2,4,6-Tribromophenol	118-79-6	0.1	%	67.6	69.6	65.7	59.6	49.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.7	68.9	61.6	40.2	51.5
Anthracene-d10	1719-06-8	0.1	%	70.1	69.6	74.2	67.5	71.2
4-Terphenyl-d14	1718-51-0	0.1	%	63.3	65.3	69.4	66.9	69.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.8	107	113	108	121
Toluene-D8	2037-26-5	0.1	%	109	121	104	93.8	101
4-Bromofluorobenzene	460-00-4	0.1	%	98.6	115	89.3	92.5	94.8
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	68.4	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	80.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	85.3	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	<0.0001
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	----	----	----	3.4	2.2
Arsenic	7440-38-2	0.2	µg/L	----	----	----	3.9	2.1
Barium	7440-39-3	0.5	µg/L	----	----	----	136	92.9
Beryllium	7440-41-7	0.1	µg/L	----	----	----	0.5	0.5
Boron	7440-42-8	5	µg/L	----	----	----	36	68
Cadmium	7440-43-9	0.05	µg/L	----	----	----	0.44	0.31
Chromium	7440-47-3	0.2	µg/L	----	----	----	0.8	<0.2
Cobalt	7440-48-4	0.1	µg/L	----	----	----	18.4	15.6
Copper	7440-50-8	0.5	µg/L	----	----	----	28.8	8.4
Lead	7439-92-1	0.1	µg/L	----	----	----	12.4	2.3
Manganese	7439-96-5	0.5	µg/L	----	----	----	319	346
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	<0.1	<0.1
Nickel	7440-02-0	0.5	µg/L	----	----	----	36.2	30.1
Thallium	7440-28-0	0.02	µg/L	----	----	----	0.23	0.10
Vanadium	7440-62-2	0.2	µg/L	----	----	----	0.5	0.5
Zinc	7440-66-6	1	µg/L	----	----	----	113	90
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	----	----	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	----	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	----	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	5	µg/L	----	----	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	----	----	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	----	----	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	----	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	----	----	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	----	----	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	----	----	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	----	----	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	----	----	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	----	----	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	----	----	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	----	----	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	----	----	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	----	----	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	----	----	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	----	----	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	----	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	----	----	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	----	----	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	----	----	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	----	----	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	5	µg/L	<<<	<<<	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<<<	<<<	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<<<	<<<	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<<<	<<<	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<<<	<<<	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<<<	<<<	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<<<	<<<	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<<<	<<<	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<<<	<<<	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<<<	<<<	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<<<	<<<	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<<<	<<<	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<<<	<<<	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<<<	<<<	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<<<	<<<	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<<<	<<<	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<<<	<<<	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<<<	<<<	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<<<	<<<	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<<<	<<<	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<<<	<<<	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<<<	<<<	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<<<	<<<	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<<<	<<<	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<<<	<<<	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<<<	<<<	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<<<	<<<	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	----	----	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	----	<100	<100	<100



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	----	----	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	16	17	<1	<1	<1
Toluene	108-88-3	2	µg/L	14	14	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	15	16	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	14	14	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	16	16	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	30	30	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	75	77	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	18	18	<5	<5	<5
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	126	117	114
Toluene-D8	2037-26-5	0.1	%	----	----	126	124	118
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	120	117	109
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	19.8	17.3	16.4
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	53.4	46.8	46.7
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	65.3	51.8	66.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	61.3	53.5	55.1
Anthracene-d10	1719-06-8	0.1	%	----	----	75.9	65.3	63.8
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	70.8	65.0	62.9



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP SPIKE-2	TRIP SPIKE 4	R02_250314_SO	VH_X_MW02_250314	VH_X_MW07_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-011	ES1406590-012	ES1406590-013	ES1406590-018	ES1406590-019
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	130	121	102	94.6	92.1
Toluene-D8	2037-26-5	0.1	%	90.6	90.2	104	89.2	85.1
4-Bromofluorobenzene	460-00-4	0.1	%	92.3	96.6	101	90.7	84.1





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	0.001	----	0.002	0.002
Cadmium	7440-43-9	0.0001	mg/L	----	0.0002	----	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	0.015	----	0.002	0.011
Lead	7439-92-1	0.001	mg/L	----	0.003	----	<0.001	0.002
Nickel	7440-02-0	0.001	mg/L	----	0.022	----	0.003	0.024
Zinc	7440-66-6	0.005	mg/L	----	0.098	----	0.021	0.127
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	3.5	----	4.5	----	----
Arsenic	7440-38-2	0.2	µg/L	3.6	----	4.8	----	----
Barium	7440-39-3	0.5	µg/L	79.7	----	109	----	----
Beryllium	7440-41-7	0.1	µg/L	1.0	----	1.7	----	----
Boron	7440-42-8	5	µg/L	54	----	43	----	----
Cadmium	7440-43-9	0.05	µg/L	0.34	----	0.38	----	----
Chromium	7440-47-3	0.2	µg/L	<0.2	----	<0.2	----	----
Cobalt	7440-48-4	0.1	µg/L	17.0	----	15.5	----	----
Copper	7440-50-8	0.5	µg/L	6.7	----	19.5	----	----
Lead	7439-92-1	0.1	µg/L	2.5	----	3.3	----	----
Manganese	7439-96-5	0.5	µg/L	333	----	268	----	----
Molybdenum	7439-98-7	0.1	µg/L	<0.1	----	<0.1	----	----
Nickel	7440-02-0	0.5	µg/L	33.5	----	30.9	----	----
Thallium	7440-28-0	0.02	µg/L	0.21	----	0.22	----	----
Vanadium	7440-62-2	0.2	µg/L	1.5	----	0.5	----	----
Zinc	7440-66-6	1	µg/L	100	----	114	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP074A: Monocyclic Aromatic Hydrocarbons - Continued</b>								
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	6	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	14	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	11	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	2.5	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	19.8	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	2.3	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	380	<20	<20	20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	410



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>								
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	410
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	390	<20	<20	20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	90	<20	<20	20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	150
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	290
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	440
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	150
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	210	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	37	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	16	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	19	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	15	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	34	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	297	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	----	----	----	1.53	0.13
PFOA	335-67-1	0.02	µg/L	----	----	----	0.08	0.04
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	----	----	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	91.4	65.1
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	119	130	122	128
Toluene-D8	2037-26-5	0.1	%	123	121	122	127	116
4-Bromofluorobenzene	460-00-4	0.1	%	114	116	118	117	108
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	20.2	22.2	18.1	22.6	23.3



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VH_X_MW08_250314	VH_X_MW09_250314	VH_X_MW10_250314	VB_MW02_250314	VB_MW01_250314
Client sampling date / time	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024

Compound	CAS Number	LOR	Unit	ES1406590-020	ES1406590-021	ES1406590-022	ES1406590-023	ES1406590-024
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	52.2	55.9	46.5	57.8	56.7
2,4,6-Tribromophenol	118-79-6	0.1	%	73.7	73.6	60.6	79.2	87.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	60.3	75.7	63.2	83.2	74.8
Anthracene-d10	1719-06-8	0.1	%	70.8	67.6	60.6	71.8	66.5
4-Terphenyl-d14	1718-51-0	0.1	%	70.2	65.0	59.7	66.7	65.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.1	96.2	105	98.7	110
Toluene-D8	2037-26-5	0.1	%	88.9	87.8	101	92.0	101
4-Bromofluorobenzene	460-00-4	0.1	%	88.5	89.2	99.7	90.5	102



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
25-MAR-2014 15:00	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029

Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.010	0.002	<0.001	<0.001	0.002
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.015	<0.001	<0.001	<0.001	0.006
Zinc	7440-66-6	0.005	mg/L	0.139	0.019	0.009	0.006	0.032
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Compound	CAS Number	LOR	Unit	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
				ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
Client sampling date / time	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029

Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	160	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	160	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	120	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	120	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VI_MW01_250314	VA_MW02_250314	D02_250314_SB	T01_250314_SB	VA_MW01_250314
				25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00	25-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406590-025	ES1406590-026	ES1406590-027	ES1406590-028	ES1406590-029
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	0.10	<0.02	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L	0.03	<0.02	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	116	119	63.6	64.8	65.9
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	130	116	126	123	121
Toluene-D8	2037-26-5	0.1	%	122	113	126	116	125
4-Bromofluorobenzene	460-00-4	0.1	%	116	106	120	107	112
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	21.9	25.0	25.3	29.0	27.4
2-Chlorophenol-D4	93951-73-6	0.1	%	55.6	60.1	57.2	63.2	60.1
2,4,6-Tribromophenol	118-79-6	0.1	%	83.6	73.7	66.8	73.7	68.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	76.2	76.3	61.5	67.9	66.6
Anthracene-d10	1719-06-8	0.1	%	73.7	70.5	68.6	80.1	71.2
4-Terphenyl-d14	1718-51-0	0.1	%	68.3	65.3	61.3	70.8	63.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	100	119	103	102
Toluene-D8	2037-26-5	0.1	%	106	86.7	110	109	102
4-Bromofluorobenzene	460-00-4	0.1	%	108	91.0	112	102	97.9



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_250314\_CM

---

---

---

---

Client sampling date / time

25-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406590-033	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EG020T: Total Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035T: Total Recoverable Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01\_250314\_CM

---

---

---

---

Client sampling date / time

25-MAR-2014 15:00

---

---

---

---

Compound	CAS Number	LOR	Unit	ES1406590-033	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**R01\_250314\_CM**

----

----

----

----

Client sampling date / time

25-MAR-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1406590-033	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	27.4	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	63.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	66.8	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	65.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	68.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	62.2	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	110	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



Sub-Matrix: <b>WATER</b>		<i>Recovery Limits (%)</i>	
<i>Compound</i>	<i>CAS Number</i>	<i>Low</i>	<i>High</i>
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
<b>2-Fluorobiphenyl</b>	321-60-8	43	135
<b>Anthracene-d10</b>	1719-06-8	48	138
<b>4-Terphenyl-d14</b>	1718-51-0	48	144



## QUALITY CONTROL REPORT

Work Order	: <b>ES1406590</b>	Page	: 1 of 38
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Order number	: 0237747	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Di-An Dao		Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sanjeshni Jyoti Mala	Senior Chemist Volatile	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 3364129)</b>									
ES1406567-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.6	8.6	0.0	0% - 20%
<b>EA032: Electrical Conductivity (saturated paste) (QC Lot: 3365817)</b>									
ES1406590-032	VM_MW04_3.0	EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	127	105	18.9	0% - 20%
<b>EA055: Moisture Content (QC Lot: 3367100)</b>									
ES1406589-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.4	13.5	0.8	0% - 50%
ES1406590-035	VU_MW12_4.1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	12.7	12.5	1.2	0% - 50%
<b>ED007: Exchangeable Cations (QC Lot: 3368930)</b>									
ES1406590-036	VU_MW10_2.2	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.3	0.3	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.6	0.6	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.1	0.0	0% - 20%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	1.0	1.0	0.0	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.0	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 3372953)</b>									
ES1406589-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1406590-030	VL_MW02_2.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	9.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3372954)</b>									
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406590-030	VL_MW02_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3363979)</b>									
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1406718-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	4.5	4.4	0.0	0% - 20%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3364011)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3364011) - continued</b>									
ES1406589-011	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3364011) - continued</b>									
ES1406589-011	Anonymous	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3364011)</b>									
ES1406589-011	Anonymous	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3363998)</b>									
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP075(SIM)A: Phenolic Compounds (QC Lot: 3363998) - continued</b>									
ES1406561-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES1406700-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	1.2	1.4	18.4	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.2	1.4	15.4	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1406700-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.7	0.7	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3363998) - continued</b>										
ES1406700-001	Anonymous	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.7	0.0	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.4	1.4	0.0	No Limit	
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3363997)</b>										
ES1406561-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	200	210	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	570	530	6.8	0% - 50%	
ES1406700-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3364010)</b>										
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1406590-031	VB_MW05_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3363997)</b>										
ES1406561-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	130	140	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	480	380	22.9	No Limit	
ES1406700-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3364010)</b>										
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1406590-031	VB_MW05_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3364010)</b>										
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3364010) - continued</b>									
ES1406590-031	VB_MW05_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		<b>Sub-Matrix: WATER</b>							
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369152)</b>									
ES1406589-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.226	0.228	0.9	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.011	0.010	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.006	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.101	0.099	2.2	0% - 20%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.323	0.311	3.7	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.046	0.041	11.2	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		ES1406590-007	VF_MW02_250314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001
EG020A-F: Arsenic	7440-38-2			0.001	mg/L	0.005	0.004	0.0	No Limit
EG020A-F: Beryllium	7440-41-7			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Barium	7440-39-3			0.001	mg/L	0.126	0.129	2.1	0% - 20%
EG020A-F: Chromium	7440-47-3			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Cobalt	7440-48-4			0.001	mg/L	0.011	0.011	0.0	0% - 50%
EG020A-F: Copper	7440-50-8			0.001	mg/L	0.002	0.002	0.0	No Limit
EG020A-F: Lead	7439-92-1			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Manganese	7439-96-5			0.001	mg/L	0.392	0.412	4.8	0% - 20%
EG020A-F: Molybdenum	7439-98-7			0.001	mg/L	0.001	<0.001	0.0	No Limit
EG020A-F: Nickel	7440-02-0			0.001	mg/L	0.004	0.004	0.0	No Limit
EG020A-F: Thallium	7440-28-0			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Zinc	7440-66-6			0.005	mg/L	0.050	0.056	9.4	0% - 50%
EG020A-F: Selenium	7782-49-2			0.01	mg/L	<0.01	<0.01	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369152) - continued</b>									
ES1406590-007	VF_MW02_250314	EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.07	0.07	0.0	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3369154)</b>									
ES1406590-028	T01_250314_SB	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.005	0.0	No Limit
ES1407038-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.022	0.021	5.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.006	21.7	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3370351)</b>									
ES1406360-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3369151)</b>									
ES1406589-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406590-004	VO_MW04_250314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3369153)</b>									
ES1406590-024	VB_MW01_250314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3369316)</b>									
ES1406589-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406729-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3374814)</b>									
ES1406590-004	VO_MW04_250314	EG093B-F: Selenium	7782-49-2	2	µg/L	276	279	1.1	0% - 20%
ES1407087-012	Anonymous	EG093B-F: Selenium	7782-49-2	2	µg/L	12	13	9.9	No Limit
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3374815)</b>									
ES1406590-004	VO_MW04_250314	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	13.9	13.7	1.2	0% - 20%
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	0.6	0.5	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	0.5	0.4	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	100	99.5	1.0	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	183	186	1.2	0% - 20%
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	184	169	8.7	0% - 20%
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	2.5	2.6	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	2650	2670	0.7	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	133	122	8.9	0% - 20%
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	3.7	4.0	8.0	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	82	74	9.4	0% - 20%
		EG093A-F: Copper	7440-50-8	1	µg/L	155	142	8.8	0% - 20%
		EG093A-F: Boron	7440-42-8	100	µg/L	1340	1320	1.8	0% - 50%
EG093A-F: Zinc	7440-66-6	5	µg/L	1200	1100	8.4	0% - 20%		
ES1407087-012	Anonymous	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	155	152	1.9	0% - 20%
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	24.1	23.4	3.1	0% - 20%
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	3.6	3.5	3.2	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	0.7	0.8	0.0	No Limit
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	2410	2360	2.2	0% - 20%
		EG093A-F: Barium	7440-39-3	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Boron	7440-42-8	100	µg/L	3500	3450	1.6	0% - 20%
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.0	No Limit		
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374816)</b>									
ES1406590-005	VO_MW03_250314	EG093A-T: Beryllium	7440-41-7	0.1	µg/L	0.1	0.1	0.0	No Limit
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	0.2	0.1	0.0	No Limit
		EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374816) - continued</b>									
ES1406590-005	VO_MW03_250314	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Cobalt	7440-48-4	0.2	µg/L	31.6	31.1	1.7	0% - 20%
		EG093A-T: Lead	7439-92-1	0.2	µg/L	1.9	1.8	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	13.3	14.0	4.9	0% - 20%
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	0.8	1.1	34.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	1880	1900	0.7	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	35.9	36.8	2.4	0% - 20%
		EG093A-T: Vanadium	7440-62-2	0.5	µg/L	2.6	2.5	4.1	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	175	175	0.0	0% - 20%
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	137	113	18.6	No Limit
EG093A-T: Zinc	7440-66-6	5	µg/L	29	30	0.0	No Limit		
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 3374817)</b>									
ES1406590-005	VO_MW03_250314	EG093B-T: Selenium	7782-49-2	2	µg/L	8	9	0.0	No Limit
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361)</b>									
ES1406590-018	VH_X_MW02_250314	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.23	0.23	0.0	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.44	0.46	4.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	18.4	18.3	0.6	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	12.4	12.2	0.9	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	3.9	3.9	0.0	0% - 50%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.8	0.8	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	136	136	0.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	28.8	28.6	0.4	0% - 20%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	319	317	0.8	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	36.2	36.6	1.0	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	113	113	0.0	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	36	35	0.0	No Limit
ES1406774-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	0.06	18.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	138	142	2.5	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.1	1.1	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit
EG094A-F: Barium	7440-39-3	0.5	µg/L	102	102	0.7	0% - 20%		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361) - continued</b>									
ES1406774-001	Anonymous	EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1010	986	2.2	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	1.6	1.6	0.0	No Limit
		EG094A-F: Zinc	7440-66-6	1	µg/L	13	13	0.0	0% - 50%
		EG094A-F: Boron	7440-42-8	5	µg/L	150	152	1.4	0% - 20%
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373363)</b>									
ES1406590-018	VH_X_MW02_250314	EG094B-F: Selenium	7782-49-2	0.2	µg/L	3.4	3.4	0.0	0% - 50%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3366189)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074D: Fumigants (QC Lot: 3366189) - continued</b>									
ES1406590-013	R02_250314_SO	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1406590-027	D02_250314_SB	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1406590-027	D02_250314_SB	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3366189) - continued</b>									
ES1406590-027	D02_250314_SB	EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3366189)</b>									
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		ES1406590-027	D02_250314_SB	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3366189) - continued</b>										
ES1406590-027	D02_250314_SB	EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074G: Trihalomethanes (QC Lot: 3366189)</b>										
ES1406590-013	R02_250314_SO	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074H: Naphthalene (QC Lot: 3366189)</b>										
ES1406590-013	R02_250314_SO	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	440	420	3.6	0% - 20%	
ES1406590-003	D01_250314_SN	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	510	490	3.2	0% - 20%	
ES1406590-003	D01_250314_SN	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3364648)</b>										
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	1	µg/L	2	2	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406590-003	D01_250314_SN	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	





Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080: BTEXN (QC Lot: 3364648) - continued</b>										
ES1406590-003	D01_250314_SN	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3366190)</b>										
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1406590-027	D02_250314_SB	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
<b>EP231: Perfluorinated Compounds (QC Lot: 3365451)</b>										
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
ES1406590-029	VA_MW01_250314	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EA032: Electrical Conductivity (saturated paste) (QCLot: 3365817)</b>									
EA032: Electrical Conductivity (Saturated Paste)	----	1	µS/cm	<1	1412 µS/cm	99.8	96	104	
<b>ED007: Exchangeable Cations (QCLot: 3368930)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	92	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	87	121	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	101	80	136	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	105	93	127	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	103	86	124	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	105	93	131	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	81	133	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	70	105	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	95.0	57.4	117	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3364011)</b>									
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	88.9	64	126	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	90.6	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	85.8	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	86.9	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	88.7	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	90.1	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	84.9	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	85.3	61	131	
<b>EP074B: Oxygenated Compounds (QCLot: 3364011)</b>									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	73.9	29.6	156	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074B: Oxygenated Compounds (QCLot: 3364011) - continued</b>									
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	114	58	136	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	106	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	108	54	136	
		5	mg/kg	<5	----	----	----	----	
<b>EP074C: Sulfonated Compounds (QCLot: 3364011)</b>									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	101	54	126	
<b>EP074D: Fumigants (QCLot: 3364011)</b>									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	89.7	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	94.9	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	90.1	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	94.0	66	126	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	39.4	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	75.0	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	83.4	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	80.4	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	95.0	49	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	86.6	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	54	126	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	89.7	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	95.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	93.9	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	95.8	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65	123	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	93.9	64	120	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.3	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	98.9	70	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011) - continued</b>									
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	99.2	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	94.6	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	92.6	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	102	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	82.5	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	103	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	85.3	48	136	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	91.6	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	89.0	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	88.0	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	88.1	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	88.4	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	89.8	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	90.3	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	80.6	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	60	132	
<b>EP074G: Trihalomethanes (QCLot: 3364011)</b>									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	96.7	62	120	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	96.8	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	93.8	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60	126	
<b>EP074H: Naphthalene (QCLot: 3364011)</b>									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	94.3	63	133	
		5	mg/kg	<5	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	83.8	74	116	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	85.9	74	116	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	86.1	72	116	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1	8 mg/kg	88.8	69	123	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.6	60.3	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	82.3	69	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	82.0	68	112	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	85.6	73	117	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	82.1	76.4	114	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998) - continued</b>									
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	76.8	57	111	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	85.8	68.9	112	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	8 mg/kg	26.5	10	57	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	86.1	80	124	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	87.3	77	123	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	82.4	79	123	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.5	77	123	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	87.5	79	123	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	86.5	79	123	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	87.6	79	123	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	89.5	79	125	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	79.6	73	121	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	81.3	81	123	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.5	70	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	83.8	77	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	84.3	76	122	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	77.9	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	82.8	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	89.5	64	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.6	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.9	70	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	77.9	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.0	68.4	128	
<b>EP080: BTEXN (QCLot: 3364010)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.7	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.9	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.1	58	118	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3364010) - continued</b>									
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.4	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	91.7	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	111	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	107	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	98.3	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.9	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	100	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	111	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	108	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	119	73	123	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.4	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.3	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	104	79	119	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	84	116	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>									
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	109	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	84	116	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	84	124	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	111	84	116	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.7	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	107	84	118	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	105	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.9	77	117	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	118	75	129	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	109	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.7	77	115	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374814)</b>									
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	100 µg/L	89.9	74	130	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	100 µg/L	90.9	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	83.2	70	122	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	81.4	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	76.4	69	117	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	87.2	73	121	
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	80.6	75	119	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	74.0	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	86.7	74	120	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	78.9	72	122	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	100 µg/L	87.5	71	131	
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	78.9	72	124	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	86.5	72	122	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	78.4	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	75.9	70	126	
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374816)</b>									
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	114	89	125	
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	112	82	128	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374816) - continued</b>								
EG093A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	92.1	79	123
EG093A-T: Boron	7440-42-8	100	µg/L	<105	----	----	----	----
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	114	82	122
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	100 µg/L	110	85	123
EG093A-T: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	116	86	122
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	117	84	128
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	117	85	125
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	113	86	126
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	101	90	126
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	116	85	125
EG093A-T: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	106	84	126
EG093A-T: Vanadium	7440-62-2	0.5	µg/L	<0.5	100 µg/L	118	84	126
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	116	82	128
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 3374817)</b>								
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	99.8	80	138
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>								
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	98.4	75	129
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	101	81	117
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	98.8	75	123
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	126	79	129
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	102	83	111
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	83	113
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	96.9	81	119
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	102	84	114
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	89.9	74	118
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	107	84	114
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	90.6	74	108
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	95.9	85	117
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	89.1	74	116
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	100	82	114
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	104	83	121
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373363)</b>								
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	90.5	70	122
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363721)</b>								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.6	61.6	107
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363722)</b>								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	77.6	61.6	107
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3366189)</b>								





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3366189) - continued</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	96.3	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.5	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	99.7	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	97.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	99.6	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.9	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.7	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.4	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.4	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3366189)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	# 59.9	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	92.7	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	97.4	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.7	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3366189)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	90.0	72.8	127	
<b>EP074D: Fumigants (QCLot: 3366189)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.9	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	99.6	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	77.6	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	81.9	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	87.6	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	136	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	117	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	116	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	113	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	106	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	109	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	80.2	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	102	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.1	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	101	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	87.5	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	101	78	122	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189) - continued</b>									
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	95.8	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	120	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	# 123	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.4	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	75.4	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	83.4	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	85.7	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	88.5	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	93.7	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	72.2	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	75.8	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	89.8	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.7	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.1	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	99.3	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	99.1	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.9	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.3	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.0	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	91.0	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	96.4	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3366189)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	103	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	82.0	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	86.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	77.4	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3366189)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	102	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363720)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	38.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	68.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	57.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363720) - continued</b>									
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.8	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	64.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	68.3	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	71.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	67.5	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	75.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	48.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363724)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	48.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	81.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	77.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	83.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	87.8	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	90.7	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	90.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	84.3	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	102	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	84.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	82.7	50	108	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363724) - continued</b>									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	82.0	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363720)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.8	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.1	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.9	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	72.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	76.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.7	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	72.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	65.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	70.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	68.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.8	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	66.7	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363724)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	82.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363724) - continued</b>									
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	91.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	84.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	93.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	92.3	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	89.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	99.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	97.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	89.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	93.9	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	88.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	94.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	92.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	92.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	89.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	93.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363719)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363723)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	88.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648) - continued</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	78.1	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.9	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363719)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	88.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	98.7	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363723)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	93.4	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.3	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.9	75	127	
<b>EP080: BTEXN (QCLot: 3364648)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	90.9	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	73.5	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.7	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	86.6	70	124	
<b>EP080: BTEXN (QCLot: 3366190)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.7	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.3	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	87.4	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	88.8	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	90.4	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.5	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366171)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	86.0	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	85.6	59	123	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	66.2	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	77.5	64	122	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366171) - continued</b>								
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	79.5	62	124
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	82.6	66	124
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	81.3	64	130
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	84.3	64	126
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	81.1	62	126
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	83.0	62	126
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	82.2	56	126
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	80.4	63	127
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	81.3	64	128
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	79.8	35	133
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	83.4	58	128
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	81.3	65	127
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	78.2	64	124
EP132: Indeno(1,2,3,cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	83.9	57	127
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	104	53.6	131
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	62.5	60	124
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	83.4	64	124
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	83.4	65	125
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	84.6	66	128
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	84.4	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	79.0	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 Fts)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	82.8	61	145

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>							
ES1406589-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	125 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	125 mg/kg	101	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.2	70	130
		EG005T: Zinc	7440-66-6	125 mg/kg	100	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>							
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.5	70	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>							
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	86.4	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>							
ES1406589-011	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.7	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>							
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.4	70	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	35.1	20	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>							
ES1406561-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.4	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>							
ES1406561-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	100	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	68.8	52	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>							
ES1406561-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.9	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.1	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.9	70	130
<b>EP080: BTEXN (QCLot: 3364010)</b>							
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.9	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	83.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.5	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.4	70	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	81.3	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3364010) - continued</b>							
ES1406589-011	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	85.3	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>							
ES1406589-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	100	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	104	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.1	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	95.1	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	94.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	91.7	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.7	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	94.9	70	130
EG020A-F: Zinc	7440-66-6	0.2 mg/L	109	70	130		
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>							
ES1406590-029	VA_MW01_250314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	98.6	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.0	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.0	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.2	70	130
		<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>					
ES1406493-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	106	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	118	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	120	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	118	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	120	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	113	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	116	70	130





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>							
ES1406493-009	Anonymous	EG020A-T: Zinc	7440-66-6	1 mg/L	101	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>							
ES1406589-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 62.5	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>							
ES1406590-025	VI_MW01_250314	EG035F: Mercury	7439-97-6	0.0100 mg/L	75.4	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>							
ES1406590-033	R01_250314_CM	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	70	130
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>							
ES1407087-002	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	106	70	130
		EG093A-F: Barium	7440-39-3	50 µg/L	92.8	70	130
		EG093A-F: Beryllium	7440-41-7	50 µg/L	106	70	130
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	103	70	130
		EG093A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG093A-F: Cobalt	7440-48-4	50 µg/L	98.0	70	130
		EG093A-F: Copper	7440-50-8	50 µg/L	103	70	130
		EG093A-F: Lead	7439-92-1	50 µg/L	94.8	70	130
		EG093A-F: Manganese	7439-96-5	50 µg/L	93.3	70	130
		EG093A-F: Nickel	7440-02-0	50 µg/L	95.8	70	130
		EG093A-F: Vanadium	7440-62-2	50 µg/L	81.0	70	130
EG093A-F: Zinc	7440-66-6	50 µg/L	99.4	70	130		
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>							
ES1406590-019	VH_X_MW07_250314	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	120	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	103	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	106	70	130
		<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>					
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	101	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	94.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>								
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	25 µg/L	96.7	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	325 µg/L	93.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	70	130	
<b>EP080: BTEXN (QCLot: 3364648)</b>								
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.1	70	130	
		EP080: Toluene	108-88-3	25 µg/L	81.2	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	85.2	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	102	70	130		
<b>EP080: BTEXN (QCLot: 3366190)</b>								
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	25 µg/L	74.7	70	130	
		EP080: Toluene	108-88-3	25 µg/L	79.6	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.9	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	99.6	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>								
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	95.8	70	136	
		EP231: PFOA	335-67-1	0.5 µg/L	79.2	72	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	2.5 µg/L	94.4	61	145	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number								
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3363979)</b>											
ES1406647-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	86.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3363997)</b>											
ES1406561-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	100	----	73	137	----	----	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	105	----	53	131	----	----	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	68.8	----	52	132	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3363997)</b>											
ES1406561-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	101	----	73	137	----	----	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.9	----	53	131	----	----	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	62.1	----	52	132	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3363998)</b>											
ES1406561-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.3	----	70	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.8	----	70	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	72.4	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.2	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	35.1	----	20	130	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3363998)</b>											
ES1406561-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.4	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.4	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.3	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	81.9	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3364010)</b>											
ES1406589-011	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	83.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.3	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		2.5 mg/kg	85.3	----	70	130	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3364011)</b>											
ES1406589-011	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	76.7	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3364011)</b>											
ES1406589-011	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	88.4	----	70	130	----	----	
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953)</b>											
ES1406589-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.2	----	70	130	----	----	



Sub-Matrix: **SOIL**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG005T: Total Metals by ICP-AES (QCLot: 3372953) - continued</b>										
ES1406589-008	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	100	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	125 mg/kg	102	----	70	130	----	----
		EG005T: Lead	7439-92-1	125 mg/kg	101	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	97.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	125 mg/kg	100	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3372954)</b>										
ES1406589-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.5	----	70	130	----	----

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.7	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3364648)</b>											
ES1406587-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	81.2	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	85.2	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----	
<b>EP231: Perfluorinated Compounds (QCLot: 3365451)</b>											
ES1406589-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	95.8	----	70	136	----	----	
		EP231: PFOA	335-67-1	0.5 µg/L	79.2	----	72	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	94.4	----	61	145	----	----	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3366189)</b>											
ES1406590-013	R02_250314_SO	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	101	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	94.2	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3366189)</b>											
ES1406590-013	R02_250314_SO	EP074: Chlorobenzene	108-90-7	25 µg/L	96.7	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366190)</b>											
ES1406590-013	R02_250314_SO	EP080: C6 - C9 Fraction	----	325 µg/L	93.0	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366190)</b>											
ES1406590-013	R02_250314_SO	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3366190)</b>											



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3366190) - continued</b>										
ES1406590-013	R02_250314_SO	EP080: Benzene	71-43-2	25 µg/L	74.7	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	79.6	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.7	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	86.3	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.9	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	99.6	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369151)</b>										
ES1406589-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 62.5	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369152)</b>										
ES1406589-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.1	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	95.1	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	94.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.8	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	91.7	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	92.7	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	94.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	109	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3369153)</b>										
ES1406590-025	VI_MW01_250314	EG035F: Mercury	7439-97-6	0.0100 mg/L	75.4	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3369154)</b>										
ES1406590-029	VA_MW01_250314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	98.6	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	88.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.0	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.0	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.2	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>										
ES1406590-033	R01_250314_CM	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	----	70	130	----	----
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351)</b>										
ES1406493-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	113	----	70	130	----	----



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3370351) - continued</b>										
ES1406493-009	Anonymous	EG020A-T: Barium	7440-39-3	1 mg/L	106	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	118	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	120	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	118	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	120	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	113	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	116	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	101	----	70	130	----	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>										
ES1406590-019	VH_X_MW07_250314	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	120	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	106	----	70	130	----	----
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3374815)</b>										
ES1407087-002	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	106	----	70	130	----	----
		EG093A-F: Barium	7440-39-3	50 µg/L	92.8	----	70	130	----	----
		EG093A-F: Beryllium	7440-41-7	50 µg/L	106	----	70	130	----	----
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	103	----	70	130	----	----
		EG093A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG093A-F: Cobalt	7440-48-4	50 µg/L	98.0	----	70	130	----	----
		EG093A-F: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----
		EG093A-F: Lead	7439-92-1	50 µg/L	94.8	----	70	130	----	----
		EG093A-F: Manganese	7439-96-5	50 µg/L	93.3	----	70	130	----	----
		EG093A-F: Nickel	7440-02-0	50 µg/L	95.8	----	70	130	----	----
		EG093A-F: Vanadium	7440-62-2	50 µg/L	81.0	----	70	130	----	----
		EG093A-F: Zinc	7440-66-6	50 µg/L	99.4	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406590</b>	Page	: 1 of 18
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 26-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: SN/SB/CM/KB	No. of samples received	: 38
Order number	: 0237747	No. of samples analysed	: 38
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA002 : pH (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) VU_MW10_2.2	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	31-MAR-2014	31-MAR-2014	✓
<b>EA032: Electrical Conductivity (saturated paste)</b>							
Soil Glass Jar - Unpreserved (EA032) VM_MW04_3.0	25-MAR-2014	----	----	----	31-MAR-2014	21-SEP-2014	✓
<b>EA055: Moisture Content</b>							
Soil Glass Jar - Unpreserved (EA055-103) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	----	----	----	31-MAR-2014	08-APR-2014	✓
<b>ED007: Exchangeable Cations</b>							
Soil Glass Jar - Unpreserved (ED007) VU_MW10_2.2	25-MAR-2014	02-APR-2014	22-APR-2014	✓	02-APR-2014	22-APR-2014	✓
<b>EG005T: Total Metals by ICP-AES</b>							
Soil Glass Jar - Unpreserved (EG005T) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	03-APR-2014	21-SEP-2014	✓	03-APR-2014	21-SEP-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Soil Glass Jar - Unpreserved (EG035T) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	03-APR-2014	22-APR-2014	✓	04-APR-2014	22-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Soil Glass Jar - Unpreserved (EP066) VB_MW05_2.0, VM_MW04_3.0	25-MAR-2014	01-APR-2014	08-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP071) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP074D: Fumigants</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074H: Naphthalene</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP074G: Trihalomethanes</b>							
Soil Glass Jar - Unpreserved (EP074) VB_MW05_2.0	25-MAR-2014	28-MAR-2014	01-APR-2014	✓	30-MAR-2014	01-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
Soil Glass Jar - Unpreserved (EP075(SIM)) VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2	25-MAR-2014	31-MAR-2014	08-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) TS5, TS7, TB4, TB6, VL_MW02_2.0, VB_MW05_2.0, VM_MW04_3.0, VU_MW12_3.2, VU_MW12_4.1, VU_MW10_2.2, TSC-5, TSC-7	25-MAR-2014	28-MAR-2014	08-APR-2014	✓	30-MAR-2014	08-APR-2014	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
TS5, TB4, VL_MW02_2.0, VM_MW04_3.0, VU_MW12_4.1, TSC-5,	TS7, TB6, VB_MW05_2.0, VU_MW12_3.2, VU_MW10_2.2, TSC-7	25-MAR-2014	28-MAR-2014	08-APR-2014	✓	30-MAR-2014	08-APR-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b>								
VN_MW01_250314, D01_250314_SN, VF_MW01_250314, VH_X_MW09_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	VN_MW02_250314, VF_MW02_250314, VF_MW03_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	25-MAR-2014	---	21-SEP-2014	----	01-APR-2014	21-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
R01_250314_SN, R01_250314_CM	R02_250314_SO,	25-MAR-2014	02-APR-2014	21-SEP-2014	✓	02-APR-2014	21-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F)</b>								
VH_X_MW02_250314, VH_X_MW08_250314,	VH_X_MW07_250314, VH_X_MW10_250314	25-MAR-2014	---	22-APR-2014	----	02-APR-2014	22-APR-2014	✓
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b>								
VN_MW01_250314, D01_250314_SN, VF_MW02_250314, VF_MW03_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VN_MW02_250314, VO_MW04_250314, VF_MW01_250314, VH_X_MW09_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	---	22-APR-2014	----	02-APR-2014	22-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VO_MW02_250314	25-MAR-2014	----	----	----	02-APR-2014	22-APR-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) VO_MW03_250314	27-MAR-2014	----	----	----	02-APR-2014	24-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_250314_SN, R02_250314_SO, R01_250314_CM	25-MAR-2014	----	----	----	02-APR-2014	22-APR-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F) VO_MW04_250314	25-MAR-2014	---	21-SEP-2014	----	04-APR-2014	21-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VO_MW02_250314	25-MAR-2014	04-APR-2014	21-SEP-2014	✓	04-APR-2014	21-SEP-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) VO_MW03_250314	27-MAR-2014	04-APR-2014	23-SEP-2014	✓	04-APR-2014	23-SEP-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093B-F) VO_MW04_250314	25-MAR-2014	---	21-SEP-2014	----	04-APR-2014	21-SEP-2014	✓
<b>EG093T: Total Metals in Saline Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VO_MW02_250314	25-MAR-2014	04-APR-2014	21-SEP-2014	✓	04-APR-2014	21-SEP-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) VO_MW03_250314	27-MAR-2014	04-APR-2014	23-SEP-2014	✓	04-APR-2014	23-SEP-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) VH_X_MW02_250314, VH_X_MW07_250314, VH_X_MW08_250314, VH_X_MW10_250314	25-MAR-2014	---	21-SEP-2014	----	03-APR-2014	21-SEP-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) VH_X_MW02_250314, VH_X_MW07_250314, VH_X_MW08_250314, VH_X_MW10_250314	25-MAR-2014	---	21-SEP-2014	----	03-APR-2014	21-SEP-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Amber Glass Bottle - Unpreserved (EP066) D02_250314_SB, T01_250314_SB, VA_MW01_250314	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
Amber Glass Bottle - Unpreserved (EP066) VB_MW02_250314, VB_MW01_250314, VI_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b>								
R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> D02_250314_SB, VA_MW01_250314,	T01_250314_SB, R01_250314_CM	25-MAR-2014	01-APR-2014	01-APR-2014	✓	02-APR-2014	11-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VN_MW01_250314, D01_250314_SN, VF_MW01_250314, R01_250314_SN, VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314	VN_MW02_250314, VF_MW02_250314, VF_MW03_250314, R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314,	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	02-APR-2014	10-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314, TRIP SPIKE-2,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN, TRIP SPIKE 4	25-MAR-2014	01-APR-2014	08-APR-2014	✓	01-APR-2014	08-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314,	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB, R01_250314_CM	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VN_MW01_250314, D01_250314_SN, VO_MW03_250314, VF_MW02_250314, VF_MW03_250314,	VN_MW02_250314, VO_MW04_250314, VO_MW02_250314, VF_MW01_250314, R01_250314_SN	25-MAR-2014	01-APR-2014	08-APR-2014	✓	01-APR-2014	08-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> R02_250314_SO, VH_X_MW07_250314, VH_X_MW09_250314, VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314,	VH_X_MW02_250314, VH_X_MW08_250314, VH_X_MW10_250314, VB_MW01_250314, VA_MW02_250314, T01_250314_SB, R01_250314_CM	25-MAR-2014	02-APR-2014	08-APR-2014	✓	02-APR-2014	08-APR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP132)</b> VO_MW04_250314, VO_MW02_250314	VO_MW03_250314,	25-MAR-2014	31-MAR-2014	01-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b> VB_MW02_250314, VI_MW01_250314, D02_250314_SB, VA_MW01_250314	VB_MW01_250314, VA_MW02_250314, T01_250314_SB,	25-MAR-2014	---	21-SEP-2014	----	30-MAR-2014	21-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Electrical Conductivity (Saturated Paste)	EA032	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	3	29	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	6	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	9.5	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	32	0.0	10.0	*	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
TPH - Semivolatile Fraction	EP071	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	2	50.0	4.8	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	6	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	0	2	0.0	4.8	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	32	0.0	5.0	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (Saturated Paste)	EA032	SOIL	USEPA 600/2 - 78 - 054 - conductivity determined on a saturated paste.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with echange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074B: Oxygenated Compounds	4021654-002	----	Vinyl Acetate	108-05-4	59.9 %	61.4-134%	Recovery less than lower control limit
EP074E: Halogenated Aliphatic Compounds	4021654-002	----	1,3-Dichloropropane	142-28-9	123 %	79-121%	Recovery greater than upper control limit
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1406589-004	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035F: Dissolved Mercury by FIMS	ES1406589-002	Anonymous	Mercury	7439-97-6	62.5 %	70-130%	Recovery less than lower data quality objective
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1406590-019	VH_X_MW07_250314	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	11	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	6	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	32	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	11	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	6	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	0	2	0.0	4.8	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	32	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406590**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : SN/SB/CM/KB</b></p>	<p><b>Page : 1 of 5</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 26-MAR-2014</b></p> <p><b>Client Requested Due Date : 04-APR-2014</b></p>	<p><b>Issue Date : 28-MAR-2014 11:25</b></p> <p><b>Scheduled Reporting Date : <b>04-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 5 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 1.8°C - Ice present</b></p> <p><b>No. of samples received : 38</b></p> <p><b>No. of samples analysed : 38</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample ID TS4, TS6 and TB1 received as TS5, TS7 and TB6 respectively on jar, lab will follow the jar ID.**
- **Sample Trip Blank not received in water sample but received TS4 instead, lab will analysis for Btex analysis.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA032 Electrical Conductivity (Saturated Paste)	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1406590-014	25-MAR-2014 15:00	TS5						✓	
ES1406590-015	25-MAR-2014 15:00	TS7						✓	
ES1406590-016	25-MAR-2014 15:00	TB4						✓	
ES1406590-017	25-MAR-2014 15:00	TB6						✓	
ES1406590-030	25-MAR-2014 15:00	VL_MW02_2.0							✓
ES1406590-031	25-MAR-2014 15:00	VB_MW05_2.0				✓	✓		✓
ES1406590-032	25-MAR-2014 15:00	VM_MW04_3.0		✓		✓			✓
ES1406590-034	25-MAR-2014 12:00	VU_MW12_3.2							✓
ES1406590-035	25-MAR-2014 12:30	VU_MW12_4.1							✓
ES1406590-036	25-MAR-2014 17:00	VU_MW10_2.2	✓		✓				✓
ES1406590-037	25-MAR-2014 15:00	TSC-5						✓	
ES1406590-038	25-MAR-2014 15:00	TSC-7						✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by	WATER - EG093B-T Total Metals in Saline Water - Suite B by
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314	✓							
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314	✓							
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN	✓							
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314			✓		✓		✓	
ES1406590-005	27-MAR-2014 15:00	VO_MW03_250314				✓		✓		✓
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314				✓		✓		✓
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314	✓							
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314	✓							
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314	✓							
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN		✓						
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314			✓		✓		✓	
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314			✓		✓		✓	



Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS (including Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG035F Dissolved metals in saline water by ORC-ICPMS	WATER - EG035A-T Total metals in Saline Water Suite A by ORC-ICPMS	WATER - EG035B-F Dissolved Metals in Saline Water Suite B by ICPMS	WATER - EG035B-T Total Metals in Saline Water - Suite B by ICPMS
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314				✓		✓		✓	
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314				✓		✓		✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314							✓	
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314							✓	
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN							✓	
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314			✓		✓			
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314			✓		✓			
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314			✓		✓			
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314							✓	
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314							✓	
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314							✓	
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN								✓
ES1406590-011	25-MAR-2014 15:00	TRIP SPIKE-2				✓				
ES1406590-012	25-MAR-2014 15:00	TRIP SPIKE 4				✓				
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO		✓						
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314		✓						
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓						
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓						
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314		✓						
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓						
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314	✓	✓			✓			
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314	✓	✓			✓			
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314	✓	✓			✓			
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314	✓	✓			✓			
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB	✓	✓			✓			
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB	✓	✓			✓			
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314	✓	✓			✓			



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-04 TRH/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES1406590-001	25-MAR-2014 08:35	VN_MW01_250314		✓		
ES1406590-002	25-MAR-2014 09:12	VN_MW02_250314		✓		
ES1406590-003	25-MAR-2014 09:00	D01_250314_SN		✓		
ES1406590-004	25-MAR-2014 11:34	VO_MW04_250314	✓			
ES1406590-005	25-MAR-2014 12:10	VO_MW03_250314	✓			
ES1406590-006	25-MAR-2014 13:16	VO_MW02_250314	✓			
ES1406590-007	25-MAR-2014 15:50	VF_MW02_250314		✓		
ES1406590-008	25-MAR-2014 16:22	VF_MW01_250314		✓		
ES1406590-009	25-MAR-2014 16:53	VF_MW03_250314		✓		
ES1406590-010	25-MAR-2014 15:00	R01_250314_SN		✓		
ES1406590-013	25-MAR-2014 15:00	R02_250314_SO				✓
ES1406590-018	25-MAR-2014 15:00	VH_X_MW02_250314		✓		
ES1406590-019	25-MAR-2014 15:00	VH_X_MW07_250314		✓		
ES1406590-020	25-MAR-2014 15:00	VH_X_MW08_250314		✓		
ES1406590-021	25-MAR-2014 15:00	VH_X_MW09_250314			✓	
ES1406590-022	25-MAR-2014 15:00	VH_X_MW10_250314		✓		
ES1406590-023	25-MAR-2014 15:00	VB_MW02_250314			✓	
ES1406590-024	25-MAR-2014 15:00	VB_MW01_250314			✓	
ES1406590-025	25-MAR-2014 15:00	VI_MW01_250314			✓	
ES1406590-026	25-MAR-2014 15:00	VA_MW02_250314			✓	
ES1406590-027	25-MAR-2014 15:00	D02_250314_SB			✓	
ES1406590-028	25-MAR-2014 15:00	T01_250314_SB			✓	
ES1406590-029	25-MAR-2014 15:00	VA_MW01_250314			✓	
ES1406590-033	25-MAR-2014 15:00	R01_250314_CM				✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

DADELAIDE 21, Burns Road, Peonka SA 5095  
Ph: 08 8389 0900 E: ade@als.com.au  
DORSET 29, Shaw Street, Stirling QLD 4053  
Ph: 07 3243 7232 E: dorset@als.com.au  
GLADSTONE 46, Callaghan Drive, Clifton QLD 4680  
Ph: 07 7471 8500 E: gladstone@als.com.au

DIMACKAY 75, Harbor Road, Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@als.com.au  
EMBLEBORNE 24, Westral Road, Springvale VIC 3171  
Ph: 03 8549 8000 E: embleborne@als.com.au  
DUNDIGEE 27, Sydney Road, Mudgee NSW 2850  
Ph: 02 6372 8736 E: mudgee@als.com.au

DNEWCASTLE 5, Rose Gum Road, Warrook NSW 2304  
Ph: 02 4956 5433 E: warrook@als.com.au  
DROOWRA 418, Coary Place, North Newsa NSW 2511  
Ph: 02 4423 2063 E: northnewsa@als.com.au  
DUPERTH 10, Red Way, Malaga WA 6000  
Ph: 08 9209 7655 E: malaga@als.com.au

DUNDEY 277, 209 Woodpark Road, Stirling NSW 2164  
Ph: 02 8794 8555 E: stirling@als.com.au  
DUNSWVILLE 14-15, Desma Court, Baulke QLD 4870  
Ph: 07 4706 0500 E: baulke@als.com.au  
DUNWINDYBUSH 69, Kingsway, Stirling NSW 2160  
Ph: 02 4223 3125 E: stirling@als.com.au

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
SITE MANAGER: JOHN EWING  
SAMPLER: SURESH NUTHALAVATI  
COC emailed to ALS? (YES / NO) YES / NO  
Email Reports to (will default to PMI if no other addresses are listed): symphony.deltacoast@erm.com  
Email Invoice to (will default to PMI if no other addresses are listed): symphony.deltacoast@erm.com

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
ALS QUOTE NO.:  
CONTACT PH: 0401 776 290

FOR LABORATORY USE ONLY (Circle)  
COC SEQUENCE NUMBER (Circle)  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7  
RECEIVED BY: SURESH NUTHALAVATI  
DATE/TIME: 26/3/14 1900  
RELINQUISHED BY: S. NUTHALAVATI  
DATE/TIME: 25.03.14  
RECEIVED BY:  
DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
						8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Al, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	
1	UN-MW01-250314	25.03.14 8:35	(W)	VS, AG, N	5		X	X	X							Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
2	UN-MW02-250314	" 9:12	(W)	VS, AG, N	5		X	X	X							Please hold
3	DDA-250314-SN	" 9:00	(W)	VS, AG, N	5		X	X	X							one home
4	VD-MW01-250314	" 11:34	(W)	VS, AG, N, P	7		X	X	X							well cold until
5	VD-MW03-250314	" 12:10	(W)	VS, AG, N, P	7		X	X	X							brother notice
6	VD-MW02-250314	" 13:16	(W)	VS, AG, N, P	7		X	X	X							
7	VF-MW02-250314	" 15:50	(W)	VS, AG, N	5		X	X	X							
8	VF-MW01-250314	" 16:02	(W)	VS, AG, N	5		X	X	X							
9	VF-MW03-250314	" 16:53	(W)	VS, AG, N	5		X	X	X							
10	RDA-250314-SN	" 15:00	(W)	VS, AG, N	4		X	X	X							
11	TRIP SPIKE	" -	(W)	VS	1		X	X	X							TPH & BTEX ONLY
12	TRIP BLANK	" -	(W)	VS	1		X	X	X							TPH & BTEX ONLY
					TOTAL											

Environmental Division  
Sydney  
Work Order  
**ES1406590**



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; OrO = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Un  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air/Height Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS =  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.





















## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406758</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : COLONGRA POWER STATION <b>Order number</b> : 0237749 <b>C-O-C number</b> : ---- <b>Sampler</b> : KATIE BRISTOW <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAR-2014 <b>Issue Date</b> : 04-APR-2014  <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 7
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





---

### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Positive results have been confirmed by re-analysis.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.06	<0.05	0.15
Barium	7440-39-3	0.001	mg/L	0.030	0.213	0.190	0.020	0.357
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.002	0.013	0.059	<0.001	0.023
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.003	0.003	<0.001
Manganese	7439-96-5	0.001	mg/L	0.022	0.404	0.880	0.011	0.816
Nickel	7440-02-0	0.001	mg/L	0.004	0.006	0.016	0.001	0.010
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.001	0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.024	0.027	0.081	0.019	0.021
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<b>30</b>
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<b>30</b>
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	16
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	16
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	30.0	29.0	31.1	32.7	30.7
2-Chlorophenol-D4	93951-73-6	0.1	%	55.0	54.5	68.0	70.2	55.5
2,4,6-Tribromophenol	118-79-6	0.1	%	67.8	72.3	73.5	74.2	71.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	57.6	58.0	66.9	71.4	65.0
Anthracene-d10	1719-06-8	0.1	%	74.6	76.0	74.4	80.4	76.6
4-Terphenyl-d14	1718-51-0	0.1	%	67.2	72.8	67.8	72.6	68.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	103	110	110	108
Toluene-D8	2037-26-5	0.1	%	112	97.6	110	108	115
4-Bromofluorobenzene	460-00-4	0.1	%	105	99.7	108	109	112



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VJ_MW01_GW	VJ_MW08_GW	---	---	---
				26-MAR-2014 15:45	26-MAR-2014 16:30	---	---	---
Compound	CAS Number	LOR	Unit	ES1406758-006	ES1406758-007	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	---	---	---
Barium	7440-39-3	0.001	mg/L	0.317	0.122	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0003	---	---	---
Cobalt	7440-48-4	0.001	mg/L	0.014	0.022	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	0.010	0.005	---	---	---
Manganese	7439-96-5	0.001	mg/L	0.398	0.913	---	---	---
Nickel	7440-02-0	0.001	mg/L	0.021	0.010	---	---	---
Lead	7439-92-1	0.001	mg/L	0.003	0.001	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.045	0.045	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VJ_MW01_GW	VJ_MW08_GW	---	---	---
				26-MAR-2014 15:45	26-MAR-2014 16:30	---	---	---
Compound	CAS Number	LOR	Unit	ES1406758-006	ES1406758-007	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VJ_MW01_GW	VJ_MW08_GW	----	----	----
				26-MAR-2014 15:45	26-MAR-2014 16:30	----	----	----
Compound	CAS Number	LOR	Unit	ES1406758-006	ES1406758-007	----	----	----
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	31.8	35.6	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	68.4	72.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	71.8	75.1	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	72.6	74.2	----	----	----
Anthracene-d10	1719-06-8	0.1	%	80.0	85.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	69.6	75.9	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	109	----	----	----
Toluene-D8	2037-26-5	0.1	%	101	108	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	110	----	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406758</b>	<b>Page</b>	: 1 of 11
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: COLONGRA POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 27-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 04-APR-2014
<b>Sampler</b>	: KATIE BRISTOW	<b>No. of samples received</b>	: 7
<b>Order number</b>	: 0237749	<b>No. of samples analysed</b>	: 7
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370374)</b>									
ES1406750-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.094	0.097	4.1	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	4.57	4.62	1.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.023	0.026	11.8	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.06	0.06	0.0	No Limit		
ES1406750-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.026	0.025	4.2	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.015	0.014	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.028	0.027	4.3	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	8.5	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.11	0.10	0.0	No Limit		
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370376)</b>									
ES1406758-006	VJ_MW01_GW	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370376) - continued</b>									
ES1406758-006	VJ_MW01_GW	EG020A-F: Barium	7440-39-3	0.001	mg/L	0.317	0.309	2.5	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.010	0.009	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.398	0.398	0.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.021	0.023	10.6	0% - 20%
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.045	0.052	13.2	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1406809-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.145	0.150	3.1	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.151	0.157	4.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3370375)</b>									
ES1406758-001	VJ_MW07_GW	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406763-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3368325) - continued</b>									
EN1401035-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	108	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	92.8	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.9	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	94.2	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.1	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	97.6	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.1	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.8	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	109	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	118	73	123	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.7	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	109	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.1	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.4	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	107	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	91.8	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.6	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	112	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375) - continued</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366265)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	52.3	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.1	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	81.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	82.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	94.8	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	92.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	93.0	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	86.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	118	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	90.0	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	99.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	79.5	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	87.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	97.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	91.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	101	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	88.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	88.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	97.9	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	96.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	97.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	102	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	93.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	105	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	101	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	102	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	100	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	102	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366264)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	99.1	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.5	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366264)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	101	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	86.9	75	127	
<b>EP080: BTEXN (QCLot: 3368325)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.5	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	81.8	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	80.9	70	120	





Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3368325) - continued</b>								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	79.2	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	83.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	86.0	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>							
ES1406750-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	96.2	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.7	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.8	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.9	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.2	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	107	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	97.3	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	70	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>							
ES1406758-007	VJ_MW08_GW	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.5	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	92.2	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	94.0	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.1	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.0	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.7	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.6	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.8	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.8	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	91.8	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>								
ES1406758-002	VJ_MW06_GW	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.8	70	130	
<b>EP080: BTEXN (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.2	70	130	
		EP080: Toluene	108-88-3	25 µg/L	86.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	81.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	90.9	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.0	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.8	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.2	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	86.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.3	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	81.5	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	----	70	130	----	----
	EP080: Naphthalene	91-20-3	25 µg/L	90.9	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>										
ES1406750-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	96.2	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.7	----	70	130	----	----



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374) - continued</b>										
ES1406750-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.8	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.9	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.8	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.2	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	97.3	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>										
ES1406758-002	VJ_MW06_GW	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.4	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>										
ES1406758-007	VJ_MW08_GW	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.5	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	92.2	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	94.0	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.1	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.0	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.7	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.6	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.8	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.8	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	91.8	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406758</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: COLONGRA POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: KATIE BRISTOW	No. of samples received	: 7
Order number	: 0237749	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	---	22-SEP-2014	----	02-APR-2014	22-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	---	23-APR-2014	----	02-APR-2014	23-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatiles Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1406758-007	VJ_MW08_GW	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1406758</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : COLONGRA POWER STATION</b> <b>Order number : 0237749</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : KATIE BRISTOW</b>	<b>Page : 1 of 2</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 27-MAR-2014</b> <b>Client Requested Due Date : 04-APR-2014</b>	<b>Issue Date : 29-MAR-2014 09:41</b> <b>Scheduled Reporting Date : 04-APR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 5 HARD</b> <b>Security Seal : Not intact.</b>	<b>Temperature : 2.3°C - Ice present</b> <b>No. of samples received : 7</b> <b>No. of samples analysed : 7</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-24 TRH/BTEX/NPAH/Phenols
ES1406758-001	26-MAR-2014 10:05	VJ_MW07_GW	✓	✓	✓
ES1406758-002	26-MAR-2014 11:00	VJ_MW06_GW	✓	✓	✓
ES1406758-003	26-MAR-2014 12:00	VJ_MW05_GW	✓	✓	✓
ES1406758-004	26-MAR-2014 13:10	VJ_MW04_GW	✓	✓	✓
ES1406758-005	26-MAR-2014 14:40	VJ_MW03_GW	✓	✓	✓
ES1406758-006	26-MAR-2014 15:45	VJ_MW01_GW	✓	✓	✓
ES1406758-007	26-MAR-2014 16:30	VJ_MW08_GW	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406758</b> <b>Amendment</b> : <b>1</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : <b>JOHN EWING</b> <b>Address</b> : <b>GROUND FLOOR</b> <b>33 SAUNDERS STREET, PYRMONT NSW 2009</b> <b>LOCKED BAG 24</b> <b>BROADWAY NSW, AUSTRALIA 2007</b>  <b>E-mail</b> : <b>john.ewing@erm.com</b> <b>Telephone</b> : <b>+61 02 8584 8888</b> <b>Facsimile</b> : <b>+61 02 8584 8800</b> <b>Project</b> : <b>VALES POINT</b> <b>Order number</b> : <b>0237749</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>KATIE BRISTOW</b> <b>Site</b> : <b>----</b>  <b>Quote number</b> : <b>SY/050/14 V3</b>	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAR-2014 <b>Issue Date</b> : 08-APR-2014  <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 7
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



---

### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Positive results have been confirmed by re-analysis.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.06	<0.05	0.15
Barium	7440-39-3	0.001	mg/L	0.030	0.213	0.190	0.020	0.357
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.002	0.013	0.059	<0.001	0.023
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.003	0.003	<0.001
Manganese	7439-96-5	0.001	mg/L	0.022	0.404	0.880	0.011	0.816
Nickel	7440-02-0	0.001	mg/L	0.004	0.006	0.016	0.001	0.010
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.001	0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.024	0.027	0.081	0.019	0.021
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<b>30</b>
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<b>30</b>
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW07_GW	VJ_MW06_GW	VJ_MW05_GW	VJ_MW04_GW	VJ_MW03_GW
				26-MAR-2014 10:05	26-MAR-2014 11:00	26-MAR-2014 12:00	26-MAR-2014 13:10	26-MAR-2014 14:40
Compound	CAS Number	LOR	Unit	ES1406758-001	ES1406758-002	ES1406758-003	ES1406758-004	ES1406758-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	16
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	16
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	30.0	29.0	31.1	32.7	30.7
2-Chlorophenol-D4	93951-73-6	0.1	%	55.0	54.5	68.0	70.2	55.5
2,4,6-Tribromophenol	118-79-6	0.1	%	67.8	72.3	73.5	74.2	71.5
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	57.6	58.0	66.9	71.4	65.0
Anthracene-d10	1719-06-8	0.1	%	74.6	76.0	74.4	80.4	76.6
4-Terphenyl-d14	1718-51-0	0.1	%	67.2	72.8	67.8	72.6	68.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	103	110	110	108
Toluene-D8	2037-26-5	0.1	%	112	97.6	110	108	115
4-Bromofluorobenzene	460-00-4	0.1	%	105	99.7	108	109	112





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW01_GW	VJ_MW08_GW	---	---	---
				26-MAR-2014 15:45	26-MAR-2014 16:30	---	---	---
Compound	CAS Number	LOR	Unit	ES1406758-006	ES1406758-007	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	---	---	---
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	---	---	---
Barium	7440-39-3	0.001	mg/L	0.317	0.122	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0003	---	---	---
Cobalt	7440-48-4	0.001	mg/L	0.014	0.022	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	---	---	---
Copper	7440-50-8	0.001	mg/L	0.010	0.005	---	---	---
Manganese	7439-96-5	0.001	mg/L	0.398	0.913	---	---	---
Nickel	7440-02-0	0.001	mg/L	0.021	0.010	---	---	---
Lead	7439-92-1	0.001	mg/L	0.003	0.001	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.045	0.045	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

	VJ_MW01_GW	VJ_MW08_GW	---	---	---
Client sampling date / time	26-MAR-2014 15:45	26-MAR-2014 16:30	---	---	---
	ES1406758-006	ES1406758-007	---	---	---

Compound	CAS Number	LOR	Unit	ES1406758-006	ES1406758-007	---	---	---
----------	------------	-----	------	---------------	---------------	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---

### EP080: BTEXN



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VJ_MW01_GW	VJ_MW08_GW	----	----	----
				26-MAR-2014 15:45	26-MAR-2014 16:30	----	----	----
				ES1406758-006	ES1406758-007	----	----	----
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	31.8	35.6	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	68.4	72.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	71.8	75.1	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	72.6	74.2	----	----	----
Anthracene-d10	1719-06-8	0.1	%	80.0	85.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	69.6	75.9	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	109	----	----	----
Toluene-D8	2037-26-5	0.1	%	101	108	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	110	----	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406758</b>	<b>Page</b>	<b>: 1 of 11</b>
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>C-O-C number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 27-MAR-2014</b>
<b>Sampler</b>	<b>: KATIE BRISTOW</b>	<b>Issue Date</b>	<b>: 08-APR-2014</b>
<b>Order number</b>	<b>: 0237749</b>		
<b>Quote number</b>	<b>: SY/050/14 V3</b>	<b>No. of samples received</b>	<b>: 7</b>
		<b>No. of samples analysed</b>	<b>: 7</b>

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370374)</b>									
ES1406750-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.094	0.097	4.1	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	4.57	4.62	1.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.023	0.026	11.8	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.06	0.06	0.0	No Limit		
ES1406750-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.026	0.025	4.2	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.015	0.014	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.028	0.027	4.3	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	8.5	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.11	0.10	0.0	No Limit		
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370376)</b>									
ES1406758-006	VJ_MW01_GW	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370376) - continued</b>									
ES1406758-006	VJ_MW01_GW	EG020A-F: Barium	7440-39-3	0.001	mg/L	0.317	0.309	2.5	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.010	0.009	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.398	0.398	0.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.021	0.023	10.6	0% - 20%
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.045	0.052	13.2	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1406809-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.145	0.150	3.1	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.151	0.157	4.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3370375)</b>									
ES1406758-001	VJ_MW07_GW	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406763-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3368325)</b>									
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit





Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3368325) - continued</b>									
EN1401035-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
ES1406758-001	VJ_MW07_GW	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	80	118
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	108	78	116
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	92.8	80	112
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.9	82	112
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	81	113
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	94.2	80	114
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	105	79	113
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	81	113
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.1	81	113
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	97.6	79	117
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.1	81	115
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	73	125
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	103	81	117
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.8	81	113
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	109	80	116
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	118	73	123
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.7	80	118
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	78	116
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	80	112
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	82	112
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	81	113
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	109	80	114
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.1	79	113
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.4	81	113
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	81	113
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	79	117
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	107	81	115
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	91.8	73	125
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	117
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	81	113
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.6	80	116
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	112	73	123
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>								



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375) - continued</b>								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	78	114
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366265)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	52.3	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.1	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	81.6	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	82.3	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	94.8	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	92.8	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	93.0	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	86.8	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	118	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	90.0	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	99.1	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	79.5	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	87.9	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	97.0	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	91.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	101	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	88.8	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	88.1	64.3	116
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366265) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	97.9	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	96.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	97.0	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	102	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	93.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	105	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	101	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	102	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	100	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	102	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366264)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	99.1	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.5	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366264)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	101	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	86.9	75	127	
<b>EP080: BTEXN (QCLot: 3368325)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.5	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	81.8	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	80.9	70	120	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
<b>EP080: BTEXN (QCLot: 3368325) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	79.2	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	83.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	86.0	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>							
ES1406750-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	96.2	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.7	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.8	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.9	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.2	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	107	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	97.3	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	70	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>							
ES1406758-007	VJ_MW08_GW	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.5	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	92.2	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	94.0	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.1	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.0	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.7	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.6	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.8	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.8	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	91.8	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>								
ES1406758-002	VJ_MW06_GW	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.0	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.8	70	130	
<b>EP080: BTEXN (QCLot: 3368325)</b>								
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.2	70	130	
		EP080: Toluene	108-88-3	25 µg/L	86.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.3	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	81.5	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	90.9	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.0	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.8	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3368325)</b>										
EN1401035-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.2	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	86.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.3	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	81.5	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.7	----	70	130	----	----
	EP080: Naphthalene	91-20-3	25 µg/L	90.9	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374)</b>										
ES1406750-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	96.2	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.7	----	70	130	----	----



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370374) - continued</b>										
ES1406750-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.05 mg/L	96.8	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	96.9	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.8	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.2	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	97.3	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370375)</b>										
ES1406758-002	VJ_MW06_GW	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.4	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370376)</b>										
ES1406758-007	VJ_MW08_GW	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.5	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	92.2	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	94.0	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.1	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.0	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.7	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.6	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.8	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.8	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	91.8	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406758</b>	Page	: 1 of 6
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 27-MAR-2014
Sampler	: KATIE BRISTOW	Issue Date	: 08-APR-2014
Order number	: 0237749		
Quote number	: SY/050/14 V3	No. of samples received	: 7
		No. of samples analysed	: 7

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	---	22-SEP-2014	----	02-APR-2014	22-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	---	23-APR-2014	----	02-APR-2014	23-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	11-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VJ_MW07_GW, VJ_MW05_GW, VJ_MW03_GW, VJ_MW08_GW	VJ_MW06_GW, VJ_MW04_GW, VJ_MW01_GW,	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1406758-007	VJ_MW08_GW	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

DADELAIDE 21 Burns Road, Fernside SA 5095  
 Ph: 08 8359 0800 E: adeelaide@alsglobal.com  
 DBENBARRIE 32 Spind Street, Stirling QLD 4053  
 Ph: 07 3243 7222 E: benbarrie@alsglobal.com  
 DGLASSBORO 48 Collemore Drive, Clinton QLD 4690  
 Ph: 07 7471 5600 E: glassboro@alsglobal.com

DWAGBAY 75 Harbour Road, Mackay QLD 4740  
 Ph: 07 4941 9177 E: mackay@alsglobal.com  
 DNEBROCK 24 Wessell Road, Springvale VIC 3171  
 Ph: 03 9589 9500 E: nebrock@alsglobal.com  
 DMLDCEB 27 Saffron Road, Melb VIC 3045  
 Ph: 02 6375 0730 E: melb@alsglobal.com

DNEVICASTLES 8 Roper Gum Road, Waralcoo NSW 2304  
 Ph: 02 4926 5439 E: waralcoo@alsglobal.com  
 DNGWYRA 4/13 Coory Place, North Nowra NSW 2541  
 Ph: 02 4423 2089 E: nowra@alsglobal.com  
 DNEBTH 10 Red Vay Mallee, VIC 6390  
 Ph: 08 9200 7655 E: mallee@alsglobal.com

DSYDNEY 277-209 Woodpark Road, Smithfield NSW 2164  
 Ph: 02 8784 8555 E: smithfield@alsglobal.com  
 DTCANBYVALE 14-15 Deane Court, Balke QLD 4818  
 Ph: 07 4796 0000 E: canbyvale@alsglobal.com  
 DVIOLONGONG 99 Kenny Street, Wollongong NSW 2500  
 Ph: 02 4225 3125 E: wollongong@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** COLONGRA POWER STATION  
**ORDER NUMBER:** 0237749  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** Kate Bisho  
**COC emailed to:** ALS? (YES / NO)  
**Email Reports to:** (will default to PM if no other addressees are listed): symphony.delaocost@erm.com  
**Email Invoice to:** (will default to PM if no other addressees are listed): symphony.delaocost@erm.com  
**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

**TURNAROUND REQUIREMENTS:**  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  Non Standard or urgent TAT (list date date):  
 Standard TAT (list date date):  
**COC SEQUENCE NUMBER (circle):**  
 1 2 3 4 5 6 7  
**RELINQUISHED BY:** Kate Bisho  
**DATE/TIME:** 26/13/2014  
**RECEIVED BY:** Sep  
**DATE/TIME:** 26/13/14 1900

**FOR LABORATORY USE ONLY (C/O)**  
 Checked/Seal Intact: Yes/No  
 Freezer/Freezer Seal Intact: Yes/No  
 Recons/Seal Intact/Temperature on Receipt: Yes/No  
 Other Comments: N/A

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS refer to	ANALYSIS REQUIRED including SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).					Additional Information							
						8 METALS (W-2)	13 METALS (W-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/ PHENOLS (W-24)	VOC	PCB		NT-1 (Ca, Mg, Na, K)	NT-2 (Al, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals		
1	VS-MW07-CW	26/13/14 10:05am	w		4	X	X											
2	VS-MW06-CW	26/13/14 11:00am	w		4	X	X											
3	VS-MW05-CW	26/13/14 12:00pm	w		4	X	X											
4	VS-MW04-CW	26/13/14 1:10pm	w		4	X	X											
5	VS-MW03-CW	26/13/14 2:40pm	w		4	X	X											
6	VS-MW01-CW	26/13/14 3:45pm	w		4	X	X											
7	VS-MW08-CW	26/13/14 4:30pm	w		4	X	X											
					<b>TOTAL</b>	20												

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solis; B = Unpreserved B99

**Environmental Division Sydney Work Order ES1406758**  
 Telephone: +61-2-8784 8555  
 Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.  
 SOOMH Amber (OH) ORC Metals Bottle (HOLD)

## CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1406761</b>	Page	: 1 of 26
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0237747	Date Samples Received	: 27-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: DB, SO, SN	No. of samples received	: 21
Site	: ----	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG020: Positive Zinc result for sample ES1406761 #011 has been confirmed by re-analysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
- **Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.**



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VD_MW02	VD_MW03	VA_MW03_260314	VM_MW03_260314	VM_MW01_260314
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-001	ES1406761-002	ES1406761-003	ES1406761-004	ES1406761-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	<0.001	<0.001	0.002
Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0004	<0.0001	<0.0001	0.0004
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.007	0.005	0.002	0.001	0.003
Lead	7439-92-1	0.001	mg/L	0.002	0.002	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.024	0.028	0.002	0.007	0.018
Zinc	7440-66-6	0.005	mg/L	0.099	0.089	0.026	0.025	0.085
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	<1	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VD_MW02	VD_MW03	VA_MW03_260314	VM_MW03_260314	VM_MW01_260314
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-001	ES1406761-002	ES1406761-003	ES1406761-004	ES1406761-005
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VD_MW02	VD_MW03	VA_MW03_260314	VM_MW03_260314	VM_MW01_260314
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-001	ES1406761-002	ES1406761-003	ES1406761-004	ES1406761-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	4.3	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VD_MW02	VD_MW03	VA_MW03_260314	VM_MW03_260314	VM_MW01_260314
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-001	ES1406761-002	ES1406761-003	ES1406761-004	ES1406761-005
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VD_MW02	VD_MW03	VA_MW03_260314	VM_MW03_260314	VM_MW01_260314
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-001	ES1406761-002	ES1406761-003	ES1406761-004	ES1406761-005
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	----	----	<0.02	3.52	<0.02
PFOA	335-67-1	0.02	µg/L	----	----	<0.02	0.08	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	----	<0.1	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	85.1	85.1	85.8
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	119	126	117	92.6
Toluene-D8	2037-26-5	0.1	%	123	117	127	118	99.4
4-Bromofluorobenzene	460-00-4	0.1	%	116	110	120	112	92.2
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	20.7	26.9	28.3	33.0	28.1
2-Chlorophenol-D4	93951-73-6	0.1	%	46.1	60.5	62.1	61.5	63.7
2,4,6-Tribromophenol	118-79-6	0.1	%	52.8	70.9	76.0	81.6	77.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	61.5	75.8	81.4	80.5	77.6
Anthracene-d10	1719-06-8	0.1	%	56.7	71.3	70.4	75.0	68.4
4-Terphenyl-d14	1718-51-0	0.1	%	50.7	62.0	64.9	67.5	60.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	124	112	118	110	100
Toluene-D8	2037-26-5	0.1	%	116	101	109	102	94.4
4-Bromofluorobenzene	460-00-4	0.1	%	120	104	114	104	94.8



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Compound	CAS Number	LOR	Unit	VS_MW01_260314	VS_MW02_260314	VS_MW03_260314	VS_MW04_260314	D03_260314_SO
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.002	0.002	0.003
Cadmium	7440-43-9	0.0001	mg/L	0.0005	0.0002	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.004	0.002	0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.017	0.013	0.005	0.002	0.002
Zinc	7440-66-6	0.005	mg/L	0.076	0.084	0.016	0.029	0.020
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VS_MW01_260314	VS_MW02_260314	VS_MW03_260314	VS_MW04_260314	D03_260314_SO
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
				ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VS_MW01_260314	VS_MW02_260314	VS_MW03_260314	VS_MW04_260314	D03_260314_SO
26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
	ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010

Compound	CAS Number	LOR	Unit	ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VS_MW01_260314	VS_MW02_260314	VS_MW03_260314	VS_MW04_260314	D03_260314_SO
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VS_MW01_260314	VS_MW02_260314	VS_MW03_260314	VS_MW04_260314	D03_260314_SO
				26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-006	ES1406761-007	ES1406761-008	ES1406761-009	ES1406761-010
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	83.1	90.5	86.3	78.5	85.5
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	104	106	104	102
Toluene-D8	2037-26-5	0.1	%	111	112	113	109	103
4-Bromofluorobenzene	460-00-4	0.1	%	103	104	106	103	101
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.7	32.5	28.4	22.3	21.7
2-Chlorophenol-D4	93951-73-6	0.1	%	53.1	73.5	62.2	49.0	47.6
2,4,6-Tribromophenol	118-79-6	0.1	%	66.7	94.6	81.2	65.4	62.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.5	92.1	81.4	65.2	65.0
Anthracene-d10	1719-06-8	0.1	%	64.9	81.5	72.9	60.2	56.9
4-Terphenyl-d14	1718-51-0	0.1	%	61.9	72.4	65.6	53.5	52.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	113	112	114	113	111
Toluene-D8	2037-26-5	0.1	%	106	106	107	103	98.0
4-Bromofluorobenzene	460-00-4	0.1	%	105	106	106	104	102



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
				26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	<0.001	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	----	----	----	<b>0.055</b>	<b>0.404</b>
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	<b>0.003</b>	<b>0.011</b>
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	<b>0.002</b>	<b>0.015</b>
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	<b>0.012</b>	<b>0.016</b>
Manganese	7439-96-5	0.001	mg/L	----	----	----	<b>0.196</b>	<b>0.262</b>
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	<b>0.002</b>	<b>0.021</b>
Selenium	7782-49-2	0.01	mg/L	----	----	----	<0.01	<0.01
Thallium	7440-28-0	0.001	mg/L	----	----	----	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	----	----	----	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	<b>0.006</b>	----	----	<b>0.017</b>	<b>0.076</b>
Boron	7440-42-8	0.05	mg/L	----	----	----	<b>0.06</b>	<0.05
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	----	<b>22.6</b>	<b>22.6</b>	----	----
Arsenic	7440-38-2	0.2	µg/L	----	<b>40.6</b>	<b>42.4</b>	----	----
Barium	7440-39-3	0.5	µg/L	----	<b>153</b>	<b>152</b>	----	----
Beryllium	7440-41-7	0.1	µg/L	----	<b>1.2</b>	<b>1.1</b>	----	----
Boron	7440-42-8	5	µg/L	----	<b>205</b>	<b>201</b>	----	----
Cadmium	7440-43-9	0.05	µg/L	----	<b>0.12</b>	<b>0.11</b>	----	----
Chromium	7440-47-3	0.2	µg/L	----	<b>6.0</b>	<b>5.7</b>	----	----
Cobalt	7440-48-4	0.1	µg/L	----	<b>24.7</b>	<b>25.3</b>	----	----
Copper	7440-50-8	0.5	µg/L	----	<b>36.9</b>	<b>36.9</b>	----	----
Lead	7439-92-1	0.1	µg/L	----	<b>107</b>	<b>100</b>	----	----
Manganese	7439-96-5	0.5	µg/L	----	<b>654</b>	<b>617</b>	----	----
Molybdenum	7439-98-7	0.1	µg/L	----	<0.1	<0.1	----	----
Nickel	7440-02-0	0.5	µg/L	----	<b>34.3</b>	<b>35.4</b>	----	----
Thallium	7440-28-0	0.02	µg/L	----	<b>0.64</b>	<b>0.63</b>	----	----
Vanadium	7440-62-2	0.2	µg/L	----	<b>0.5</b>	<b>0.4</b>	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
				26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	1	µg/L	----	90	89	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	----	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	----	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	----	----
<b>EP074D: Fumigants</b>								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	----	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
				26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	----	----	----	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
Client sampling date / time	26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017

Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EP074G: Trihalomethanes - Continued</b>								
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
				26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	----	<0.1	<0.1	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	----	<0.1	<0.1	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	----	<0.1	<0.1	----	----
Acenaphthene	83-32-9	0.1	µg/L	----	<0.1	<0.1	----	----
Acenaphthylene	208-96-8	0.1	µg/L	----	<0.1	<0.1	----	----
Anthracene	120-12-7	0.1	µg/L	----	<0.1	<0.1	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
26-MAR-2014 15:00					
	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017

Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benz(a)anthracene	56-55-3	0.1	µg/L	----	<0.1	<0.1	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	----	<0.05	<0.05	----	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	----	<0.1	<0.1	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L	----	<0.1	<0.1	----	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	----	<0.1	<0.1	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	----	<0.1	<0.1	----	----
Chrysene	218-01-9	0.1	µg/L	----	<0.1	<0.1	----	----
Coronene	191-07-1	0.1	µg/L	----	<0.1	<0.1	----	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	----	<0.1	<0.1	----	----
Fluoranthene	206-44-0	0.1	µg/L	----	<0.1	<0.1	----	----
Fluorene	86-73-7	0.1	µg/L	----	<0.1	<0.1	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	----	<0.1	<0.1	----	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	----	<0.1	<0.1	----	----
Naphthalene	91-20-3	0.1	µg/L	----	<0.1	<0.1	----	----
Perylene	198-55-0	0.1	µg/L	----	<0.1	<0.1	----	----
Phenanthrene	85-01-8	0.1	µg/L	----	<0.1	<0.1	----	----
Pyrene	129-00-0	0.1	µg/L	----	<0.1	<0.1	----	----
^ Sum of PAHs	----	0.05	µg/L	----	<0.05	<0.05	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	----	<0.05	<0.05	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.9	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	99.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.1	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	27.8	25.8	23.9	20.3	24.9
2-Chlorophenol-D4	93951-73-6	0.1	%	62.5	55.4	53.9	53.6	55.0
2,4,6-Tribromophenol	118-79-6	0.1	%	76.5	73.0	65.1	72.1	62.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	81.8	72.8	73.0	80.2	70.4
Anthracene-d10	1719-06-8	0.1	%	73.2	64.5	66.8	75.9	54.4
4-Terphenyl-d14	1718-51-0	0.1	%	65.1	63.4	67.9	77.2	61.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	92.3	92.0	102	93.8





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	R03_260314_SO	VO_MW18_260314	D01_260314_SN	VA_MW04_260314	VA_MW05_260314
Client sampling date / time	26-MAR-2014 15:00	26-MAR-2014 08:24	26-MAR-2014 08:00	26-MAR-2014 09:58	26-MAR-2014 10:46
Compound	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017

Compound	CAS Number	LOR	Unit	ES1406761-011	ES1406761-014	ES1406761-015	ES1406761-016	ES1406761-017
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	94.8	90.8	94.9	96.7	99.3
4-Bromofluorobenzene	460-00-4	0.1	%	97.8	85.8	85.4	95.2	90.3
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	74.0	69.5	----	----
Anthracene-d10	1719-06-8	0.1	%	----	72.6	70.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	81.5	79.3	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VC_MW02_260314	VC_MW05_260314	VC_MW01_260314	R01_260314_SN	TRIP BLANK
				26-MAR-2014 11:28	26-MAR-2014 12:06	26-MAR-2014 13:33	26-MAR-2014 14:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	<0.001	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	----	<b>0.043</b>	<b>0.087</b>	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<b>0.002</b>	<b>0.005</b>	----	----
Copper	7440-50-8	0.001	mg/L	----	<b>0.002</b>	<b>0.007</b>	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	----	<b>0.160</b>	<b>0.183</b>	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	<b>0.004</b>	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	----	----
Thallium	7440-28-0	0.001	mg/L	----	<0.001	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	----	<b>0.012</b>	<b>0.040</b>	----	----
Boron	7440-42-8	0.05	mg/L	----	<b>0.13</b>	<b>0.08</b>	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Beryllium	7440-41-7	0.001	mg/L	----	----	----	<0.001	----
Barium	7440-39-3	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Manganese	7439-96-5	0.001	mg/L	----	----	----	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Selenium	7782-49-2	0.01	mg/L	----	----	----	<0.01	----
Thallium	7440-28-0	0.001	mg/L	----	----	----	<0.001	----
Vanadium	7440-62-2	0.01	mg/L	----	----	----	<0.01	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
Boron	7440-42-8	0.05	mg/L	----	----	----	<0.05	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VC_MW02_260314	VC_MW05_260314	VC_MW01_260314	R01_260314_SN	TRIP BLANK
				26-MAR-2014 11:28	26-MAR-2014 12:06	26-MAR-2014 13:33	26-MAR-2014 14:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
Selenium	7782-49-2	0.2	µg/L	0.5	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L	1.2	----	----	----	----
Barium	7440-39-3	0.5	µg/L	124	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	----	----	----	----
Boron	7440-42-8	5	µg/L	433	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.3	----	----	----	----
Cobalt	7440-48-4	0.1	µg/L	2.0	----	----	----	----
Copper	7440-50-8	0.5	µg/L	<0.5	----	----	----	----
Lead	7439-92-1	0.1	µg/L	0.1	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	393	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	0.2	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	2.4	----	----	----	----
Thallium	7440-28-0	0.02	µg/L	<0.02	----	----	----	----
Vanadium	7440-62-2	0.2	µg/L	0.5	----	----	----	----
Zinc	7440-66-6	1	µg/L	16	----	----	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VC_MW02_260314	VC_MW05_260314	VC_MW01_260314	R01_260314_SN	TRIP BLANK
				26-MAR-2014 11:28	26-MAR-2014 12:06	26-MAR-2014 13:33	26-MAR-2014 14:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VC_MW02_260314	VC_MW05_260314	VC_MW01_260314	R01_260314_SN	TRIP BLANK
				26-MAR-2014 11:28	26-MAR-2014 12:06	26-MAR-2014 13:33	26-MAR-2014 14:00	26-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	----	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	----	----	----	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	----	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	----	----	----	----
Anthracene	120-12-7	0.1	µg/L	<0.1	----	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	----	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	----	----	----	----
Chrysene	218-01-9	0.1	µg/L	<0.1	----	----	----	----
Coronene	191-07-1	0.1	µg/L	<0.1	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	----	----	----	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	----	----	----	----
Fluorene	86-73-7	0.1	µg/L	<0.1	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	----	----	----	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	----	----	----	----
Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	----	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VC_MW02_260314	VC_MW05_260314	VC_MW01_260314	R01_260314_SN	TRIP BLANK
Client sampling date / time	26-MAR-2014 11:28	26-MAR-2014 12:06	26-MAR-2014 13:33	26-MAR-2014 14:00	26-MAR-2014 15:00
	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022

Compound	CAS Number	LOR	Unit	ES1406761-018	ES1406761-019	ES1406761-020	ES1406761-021	ES1406761-022
<b>EP132B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	29.8	25.6	26.8	26.0	----
2-Chlorophenol-D4	93951-73-6	0.1	%	56.1	50.1	52.2	52.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	65.9	57.2	59.2	59.4	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	80.5	66.8	69.4	67.5	----
Anthracene-d10	1719-06-8	0.1	%	65.9	57.6	60.2	62.6	----
4-Terphenyl-d14	1718-51-0	0.1	%	67.3	57.3	61.9	63.8	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.0	96.6	94.9	81.0	102
Toluene-D8	2037-26-5	0.1	%	97.5	98.5	97.4	79.9	93.2
4-Bromofluorobenzene	460-00-4	0.1	%	90.3	89.2	87.4	73.6	83.5
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	63.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	74.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	77.8	----	----	----	----



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>TRIP SPIKE</b>	----	----	----	----
-------------------	------	------	------	------

Client sampling date / time

26-MAR-2014 15:00	----	----	----	----
-------------------	------	------	------	------

<i>Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<b>ES1406761-023</b>	----	----	----	----
-----------------	-------------------	------------	-------------	----------------------	------	------	------	------

### EP080: BTEXN

<b>Benzene</b>	71-43-2	1	µg/L	<b>16</b>	----	----	----	----
<b>Toluene</b>	108-88-3	2	µg/L	<b>15</b>	----	----	----	----
<b>Ethylbenzene</b>	100-41-4	2	µg/L	<b>15</b>	----	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	2	µg/L	<b>16</b>	----	----	----	----
<b>ortho-Xylene</b>	95-47-6	2	µg/L	<b>15</b>	----	----	----	----
<b>Total Xylenes</b>	1330-20-7	2	µg/L	<b>31</b>	----	----	----	----
<b>Sum of BTEX</b>	----	1	µg/L	<b>77</b>	----	----	----	----
<b>Naphthalene</b>	91-20-3	5	µg/L	<b>20</b>	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>96.1</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>93.8</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>82.8</b>	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
<b>EP132T: Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144



## QUALITY CONTROL REPORT

Work Order	: <b>ES1406761</b>	Page	: 1 of 21
Client	: <b>ENVIRO RESOURCES MANAGEMENT</b>	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: DB, SO, SN	No. of samples received	: 21
Order number	: 0237747	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

## Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3370381)</b>									
ES1406761-003	VA_MW03_260314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.190	0.186	2.1	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.146	0.150	3.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.026	0.029	10.9	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406761-011	R03_260314_SO	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.005	<0.001	136	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3372484)</b>									
ES1406630-012	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3372484) - continued</b>									
ES1406630-012	Anonymous	EG020A-T: Barium	7440-39-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.019	0.022	14.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1406978-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.014	0.014	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3370380)</b>									
ES1406761-001	VD_MW02	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406761-010	D03_260314_SO	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3369316)</b>									
ES1406589-019	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1406729-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361)</b>									
ES1406590-018	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.23	0.23	0.0	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.44	0.46	4.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	18.4	18.3	0.6	0% - 20%



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373361) - continued</b>									
ES1406590-018	Anonymous	EG094A-F: Lead	7439-92-1	0.1	µg/L	12.4	12.2	0.9	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	3.9	3.9	0.0	0% - 50%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.8	0.8	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	136	136	0.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	28.8	28.6	0.4	0% - 20%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	319	317	0.8	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	36.2	36.6	1.0	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	113	113	0.0	0% - 20%
EG094A-F: Boron	7440-42-8	5	µg/L	36	35	0.0	No Limit		
ES1406774-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	0.06	18.2	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	138	142	2.5	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.1	1.1	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	102	102	0.7	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1010	986	2.2	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	1.6	1.6	0.0	No Limit
		EG094A-F: Zinc	7440-66-6	1	µg/L	13	13	0.0	0% - 50%
EG094A-F: Boron	7440-42-8	5	µg/L	150	152	1.4	0% - 20%		
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3373363)</b>									
ES1406590-018	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	3.4	3.4	0.0	0% - 50%
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		ES1406821-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5
EP074: Isopropylbenzene	98-82-8			5	µg/L	166	164	1.1	0% - 20%



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3370479) - continued</b>									
ES1406821-001	Anonymous	EP074: n-Propylbenzene	103-65-1	5	µg/L	444	433	2.6	0% - 20%
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	24	23	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	27	26	4.3	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1406821-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1406821-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1406821-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3370479) - continued</b>									
ES1406761-001	VD_MW02	EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1406821-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3370479) - continued</b>									
ES1406821-001	Anonymous	EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1406821-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1406821-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3370479)</b>									
ES1406761-001	VD_MW02	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1406821-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	216	202	6.5	0% - 20%
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3370480)</b>									
ES1406761-001	VD_MW02	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406821-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	1480	1460	1.1	0% - 20%





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1406763-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3370480)</b>										
ES1406761-001	VD_MW02	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406821-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	2340	2320	1.0	0% - 20%	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406763-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3370480)</b>										
ES1406761-001	VD_MW02	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406821-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	17	17	0.0	0% - 50%	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	2	2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	4	4	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP080: Naphthalene	91-20-3	5	µg/L	212	199	6.5	0% - 20%			
<b>EP080: BTEXN (QC Lot: 3370481)</b>										
ES1406740-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406763-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
<b>EP231: Perfluorinated Compounds (QC Lot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	4.41	4.34	1.6	0% - 20%	

Page : 10 of 21  
 Work Order : ES1406761  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP231: Perfluorinated Compounds (QC Lot: 3368134) - continued</b>									
EP1402377-001	Anonymous	EP231: PFOA	335-67-1	0.02	µg/L	1.59	1.57	1.1	0% - 20%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	0.4	0.3	0.0	No Limit
ES1406761-010	D03_260314_SO	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370381)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	108	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.0	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.2	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	120	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.0	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	109	73	123	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3372484)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	79	119	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	106	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	84	116	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.0	84	116	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	85	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	84	124	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	84	116	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.6	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	102	84	118	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	106	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.0	77	117	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	98.4	75	129	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370380)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370380) - continued</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.2	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.7	77	115	
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	98.4	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	101	81	117	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	98.8	75	123	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	126	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	102	83	111	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	83	113	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	96.9	81	119	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	102	84	114	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	89.9	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	107	84	114	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	90.6	74	108	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	95.9	85	117	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	89.1	74	116	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	100	82	114	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	104	83	121	
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373363)</b>									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	90.5	70	122	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3366307)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	73.0	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3370479)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	105	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	110	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	106	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	104	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	108	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	106	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	105	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	107	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3370479)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	81.3	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	106	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	103	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	103	65	137	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP074C: Sulfonated Compounds (QCLot: 3370479)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	91.2	72.8	127	
<b>EP074D: Fumigants (QCLot: 3370479)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	105	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	87.1	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	73.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	91.4	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3370479)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	85.9	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	102	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	107	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	106	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	107	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	109	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	82.0	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	108	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	107	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	101	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	99.8	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	105	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	100	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	107	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	106	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	78.9	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.1	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	93.2	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	91.0	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	97.5	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	# 70.6	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	70.3	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3370479)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	102	76	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3370479) - continued</b>									
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	106	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	104	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	103	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	102	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3370479)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	107	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.9	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	81.7	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	87.3	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3370479)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	104	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3366306)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	39.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	63.4	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	66.1	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	68.8	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	63.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	69.5	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	67.9	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	66.1	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	70.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	44.5	10	95	
		2	µg/L	<2.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366306)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	61.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	70.2	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.0	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	68.9	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	68.9	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.7	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	76.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	75.6	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	# 63.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	67.0	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	72.2	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	70.1	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	65.7	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	66.5	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	67.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.3	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3366305)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	104	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.7	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370480)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481) - continued</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	112	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3366305)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	92.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.7	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	94.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370480)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	113	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75	127	
<b>EP080: BTEXN (QCLot: 3370480)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	114	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	120	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	119	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	116	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	120	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	111	70	124	
<b>EP080: BTEXN (QCLot: 3370481)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	117	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	118	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	119	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	116	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	117	70	124	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366791)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.10	µg/L	<0.1	2 µg/L	86.5	60	120	
EP132: 2-Methylnaphthalene	91-57-6	0.10	µg/L	<0.1	2 µg/L	72.1	59	123	
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.10	µg/L	<0.1	2 µg/L	59.8	12.3	156	
EP132: Acenaphthene	83-32-9	0.10	µg/L	<0.1	2 µg/L	74.3	64	122	
EP132: Acenaphthylene	208-96-8	0.10	µg/L	<0.1	2 µg/L	77.4	62	124	
EP132: Anthracene	120-12-7	0.10	µg/L	<0.1	2 µg/L	77.5	66	124	
EP132: Benz(a)anthracene	56-55-3	0.10	µg/L	<0.1	2 µg/L	81.2	64	130	
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	80.8	64	126	
EP132: Benzo(b)fluoranthene	205-99-2	0.10	µg/L	<0.1	2 µg/L	74.8	62	126	
EP132: Benzo(e)pyrene	192-97-2	0.10	µg/L	<0.1	2 µg/L	80.4	62	126	
EP132: Benzo(g,h,i)perylene	191-24-2	0.10	µg/L	<0.1	2 µg/L	74.2	56	126	





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 3366791) - continued</b>									
EP132: Benzo(k)fluoranthene	207-08-9	0.10	µg/L	<0.1	2 µg/L	86.8	63	127	
EP132: Chrysene	218-01-9	0.10	µg/L	<0.1	2 µg/L	77.0	64	128	
EP132: Coronene	191-07-1	0.10	µg/L	<0.1	2 µg/L	67.7	35	133	
EP132: Dibenz(a,h)anthracene	53-70-3	0.10	µg/L	<0.1	2 µg/L	78.3	58	128	
EP132: Fluoranthene	206-44-0	0.10	µg/L	<0.1	2 µg/L	79.7	65	127	
EP132: Fluorene	86-73-7	0.10	µg/L	<0.1	2 µg/L	76.1	64	124	
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.10	µg/L	<0.1	2 µg/L	76.7	57	127	
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.10	µg/L	<0.1	2 µg/L	103	53.6	131	
EP132: Naphthalene	91-20-3	0.10	µg/L	<0.1	2 µg/L	76.5	60	124	
EP132: Perylene	198-55-0	0.10	µg/L	<0.1	2 µg/L	78.8	64	124	
EP132: Phenanthrene	85-01-8	0.10	µg/L	<0.1	2 µg/L	78.0	65	125	
EP132: Pyrene	129-00-0	0.10	µg/L	<0.1	2 µg/L	80.4	66	128	
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>									
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	79.6	70	136	
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	73.2	72	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	81.0	61	145	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3370381)</b>							
ES1406761-004	VM_MW03_260314	EG020A-F: Arsenic	7440-38-2	0.4 mg/L	99.0	70	130
		EG020A-F: Beryllium	7440-41-7	0.4 mg/L	102	70	130
		EG020A-F: Barium	7440-39-3	0.4 mg/L	103	70	130
		EG020A-F: Cadmium	7440-43-9	0.1 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.4 mg/L	92.0	70	130
		EG020A-F: Cobalt	7440-48-4	0.4 mg/L	95.3	70	130
		EG020A-F: Copper	7440-50-8	0.4 mg/L	89.9	70	130
		EG020A-F: Lead	7439-92-1	0.4 mg/L	93.9	70	130
		EG020A-F: Manganese	7439-96-5	0.4 mg/L	92.7	70	130
		EG020A-F: Nickel	7440-02-0	0.4 mg/L	94.0	70	130
		EG020A-F: Vanadium	7440-62-2	0.4 mg/L	94.2	70	130
		EG020A-F: Zinc	7440-66-6	0.4 mg/L	94.9	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3372484)</b>							
ES1406761-021	R01_260314_SN	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.7	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3372484) - continued</b>							
ES1406761-021	R01_260314_SN	EG020A-T: Beryllium	7440-41-7	1 mg/L	96.3	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	97.7	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.2	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	95.3	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	96.8	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.1	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	96.5	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	98.6	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.2	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	93.8	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.2	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3370380)</b>							
ES1406761-002	VD_MW03	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.4	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3369316)</b>							
ES1406590-033	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	88.6	70	130
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>							
ES1406590-019	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	120	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	103	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	106	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3370479)</b>							
ES1406761-001	VD_MW02	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	120	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	106	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3370479)</b>							
ES1406761-001	VD_MW02	EP074: Chlorobenzene	108-90-7	25 µg/L	105	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370480)</b>							
ES1406761-001	VD_MW02	EP080: C6 - C9 Fraction	----	325 µg/L	116	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481)</b>							



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481) - continued</b>								
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370480)</b>								
ES1406761-001	VD_MW02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>								
ES1406740-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	70	130	
<b>EP080: BTEXN (QCLot: 3370480)</b>								
ES1406761-001	VD_MW02	EP080: Benzene	71-43-2	25 µg/L	98.7	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.5	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	98.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	93.2	70	130		
<b>EP080: BTEXN (QCLot: 3370481)</b>								
ES1406740-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	70	130	
		EP080: Toluene	108-88-3	25 µg/L	115	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	116	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	119	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	120	70	130		
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>								
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	70	136	
		EP231: PFOA	335-67-1	0.5 µg/L	# 64.4	72	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	81.3	61	145	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	----	70	136	----	----





Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370481) - continued</b>											
ES1406740-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370481)</b>											
ES1406740-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3370481)</b>											
ES1406740-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	115	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	116	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	119	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	120	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3372484)</b>											
ES1406761-021	R01_260314_SN	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.7	----	70	130	----	----	
		EG020A-T: Beryllium	7440-41-7	1 mg/L	96.3	----	70	130	----	----	
		EG020A-T: Barium	7440-39-3	1 mg/L	97.7	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.2	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	95.3	----	70	130	----	----	
		EG020A-T: Cobalt	7440-48-4	1 mg/L	96.8	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	97.1	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	96.5	----	70	130	----	----	
		EG020A-T: Manganese	7439-96-5	1 mg/L	98.6	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.2	----	70	130	----	----	
		EG020A-T: Vanadium	7440-62-2	1 mg/L	93.8	----	70	130	----	----	
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.2	----	70	130	----	----	
		<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3373361)</b>									
ES1406590-019	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	124	----	70	130	----	----	
		EG094A-F: Barium	7440-39-3	50 µg/L	120	----	70	130	----	----	
		EG094A-F: Beryllium	7440-41-7	50 µg/L	86.6	----	70	130	----	----	
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	106	----	70	130	----	----	
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----	
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	----	70	130	----	----	
		EG094A-F: Copper	7440-50-8	50 µg/L	103	----	70	130	----	----	
		EG094A-F: Lead	7439-92-1	50 µg/L	98.5	----	70	130	----	----	
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----	
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	----	70	130	----	----	
		EG094A-F: Vanadium	7440-62-2	50 µg/L	97.9	----	70	130	----	----	
		EG094A-F: Zinc	7440-66-6	50 µg/L	106	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406761</b>	Page	: 1 of 12
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAR-2014
C-O-C number	: ----	Issue Date	: 04-APR-2014
Sampler	: DB, SO, SN	No. of samples received	: 21
Order number	: 0237747	No. of samples analysed	: 21
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO, VA_MW05_260314, VC_MW01_260314	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, VA_MW04_260314, VC_MW05_260314	26-MAR-2014	---	22-SEP-2014	----	02-APR-2014	22-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> R01_260314_SN		26-MAR-2014	03-APR-2014	22-SEP-2014	✓	03-APR-2014	22-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO, D01_260314_SN, VA_MW05_260314, VC_MW05_260314	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, VO_MW18_260314, VA_MW04_260314, VC_MW02_260314, VC_MW01_260314	26-MAR-2014	---	23-APR-2014	----	03-APR-2014	23-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> R01_260314_SN		26-MAR-2014	----	----	----	02-APR-2014	23-APR-2014	✓
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>								
<b>Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F)</b> VO_MW18_260314, VC_MW02_260314	D01_260314_SN,	26-MAR-2014	---	22-SEP-2014	----	03-APR-2014	22-SEP-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS</b>							
<b>Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F)</b> VO_MW18_260314, VC_MW02_260314	D01_260314_SN, 26-MAR-2014	---	22-SEP-2014	----	03-APR-2014	22-SEP-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
<b>Amber Glass Bottle - Unpreserved (EP066)</b> VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314,	VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, 26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	10-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO, D01_260314_SN, VA_MW05_260314, VC_MW05_260314, R01_260314_SN	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, VO_MW18_260314, VA_MW04_260314, VC_MW02_260314, VC_MW01_260314, 26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	10-MAY-2014	✓
<b>EP074D: Fumigants</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, 26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, 26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓





Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO,	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO, D01_260314_SN, VA_MW05_260314, VC_MW05_260314, R01_260314_SN	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, VO_MW18_260314, VA_MW04_260314, VC_MW02_260314, VC_MW01_260314,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	10-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO, VA_MW05_260314, VC_MW01_260314,	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO, VA_MW04_260314, VC_MW05_260314, R01_260314_SN	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	03-APR-2014	10-MAY-2014	✓



Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO,	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW18_260314, VA_MW04_260314, VC_MW02_260314, VC_MW01_260314, TRIP BLANK,	D01_260314_SN, VA_MW05_260314, VC_MW05_260314, R01_260314_SN, TRIP SPIKE	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VD_MW02, VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314, R03_260314_SO	VD_MW03, VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO,	26-MAR-2014	02-APR-2014	09-APR-2014	✓	02-APR-2014	09-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW18_260314, VA_MW04_260314, VC_MW02_260314, VC_MW01_260314, TRIP BLANK	D01_260314_SN, VA_MW05_260314, VC_MW05_260314, R01_260314_SN,	26-MAR-2014	03-APR-2014	09-APR-2014	✓	03-APR-2014	09-APR-2014	✓
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP132)</b> VO_MW18_260314, VC_MW02_260314	D01_260314_SN,	26-MAR-2014	31-MAR-2014	02-APR-2014	✓	01-APR-2014	10-MAY-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b> VA_MW03_260314, VM_MW01_260314, VS_MW02_260314, VS_MW04_260314,	VM_MW03_260314, VS_MW01_260314, VS_MW03_260314, D03_260314_SO	26-MAR-2014	---	22-SEP-2014	----	01-APR-2014	22-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	8	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	3	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	8	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	3	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capillary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorbed onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074E: Halogenated Aliphatic Compounds	4027120-002	----	<b>Pentachloroethane</b>	76-01-7	70.6 %	71.8-126%	<b>Recovery less than lower control limit</b>
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	4021789-007	----	<b>Benz(a)anthracene</b>	56-55-3	63.5 %	64.1-117%	<b>Recovery less than lower control limit</b>
<b>Matrix Spike (MS) Recoveries</b>							
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1406590-019	Anonymous	<b>Manganese</b>	7439-96-5	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	<b>PFOS</b>	1763-23-1	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	<b>PFOA</b>	335-67-1	64.4 %	72-134%	<b>Recovery less than lower data quality objective</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	8	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	3	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					





Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Matrix Spikes (MS) - Continued</b>					
PAH/Phenols (GC/MS - SIM)	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	8	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	3	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406761**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ---</b></p> <p><b>Site : ---</b></p> <p><b>Sampler : DB, SO, SN</b></p>	<p><b>Page : 1 of 4</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 27-MAR-2014</b></p> <p><b>Client Requested Due Date : 04-APR-2014</b></p>	<p><b>Issue Date : 31-MAR-2014 10:36</b></p> <p><b>Scheduled Reporting Date : <b>04-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 5 HARD</b></p> <p><b>Security Seal : Not intact.</b></p>	<p><b>Temperature : 2.3°C - Ice present</b></p> <p><b>No. of samples received : 21</b></p> <p><b>No. of samples analysed : 21</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Samples VD\_MW04\_270314 and VS\_MW05\_270314 not received by ALS Sydney.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by	WATER - EN80F Lab Acidification of Dissolved Metals	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP075 SIM Phenols only	SIM - Phenols only
ES1406761-001	26-MAR-2014 15:00	VD_MW02								✓	
ES1406761-002	26-MAR-2014 15:00	VD_MW03								✓	
ES1406761-003	26-MAR-2014 15:00	VA_MW03_260314						✓	✓		
ES1406761-004	26-MAR-2014 15:00	VM_MW03_260314						✓	✓		
ES1406761-005	26-MAR-2014 15:00	VM_MW01_260314						✓	✓		
ES1406761-006	26-MAR-2014 15:00	VS_MW01_260314						✓	✓		
ES1406761-007	26-MAR-2014 15:00	VS_MW02_260314						✓	✓		
ES1406761-008	26-MAR-2014 15:00	VS_MW03_260314						✓	✓		
ES1406761-009	26-MAR-2014 15:00	VS_MW04_260314						✓	✓		
ES1406761-010	26-MAR-2014 15:00	D03_260314_SO						✓	✓		
ES1406761-011	26-MAR-2014 15:00	R03_260314_SO							✓		
ES1406761-014	26-MAR-2014 08:24	VO_MW18_260314			✓	✓					✓
ES1406761-015	26-MAR-2014 08:00	D01_260314_SN			✓	✓	✓				✓
ES1406761-016	26-MAR-2014 09:58	VA_MW04_260314	✓								
ES1406761-017	26-MAR-2014 10:46	VA_MW05_260314	✓								
ES1406761-018	26-MAR-2014 11:28	VC_MW02_260314			✓	✓					✓
ES1406761-019	26-MAR-2014 12:06	VC_MW05_260314	✓								
ES1406761-020	26-MAR-2014 13:33	VC_MW01_260314	✓								
ES1406761-021	26-MAR-2014 14:00	R01_260314_SN		✓							

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - EP231 Perfluorooctyl Acids and Sulfonates	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406761-003	26-MAR-2014 15:00	VA_MW03_260314			✓					
ES1406761-004	26-MAR-2014 15:00	VM_MW03_260314			✓					
ES1406761-005	26-MAR-2014 15:00	VM_MW01_260314			✓					
ES1406761-006	26-MAR-2014 15:00	VS_MW01_260314			✓					
ES1406761-007	26-MAR-2014 15:00	VS_MW02_260314			✓					



			WATER - EP080 BTEXN	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic	WATER - EP231 Perfluorocetyl Acids and Sulfonates	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1406761-008	26-MAR-2014 15:00	VS_MW03_260314			✓					
ES1406761-009	26-MAR-2014 15:00	VS_MW04_260314			✓					
ES1406761-010	26-MAR-2014 15:00	D03_260314_SO			✓					
ES1406761-014	26-MAR-2014 08:24	VO_MW18_260314		✓				✓		
ES1406761-015	26-MAR-2014 08:00	D01_260314_SN		✓				✓		
ES1406761-016	26-MAR-2014 09:58	VA_MW04_260314				✓				✓
ES1406761-017	26-MAR-2014 10:46	VA_MW05_260314				✓				✓
ES1406761-018	26-MAR-2014 11:28	VC_MW02_260314		✓				✓		
ES1406761-019	26-MAR-2014 12:06	VC_MW05_260314				✓				✓
ES1406761-020	26-MAR-2014 13:33	VC_MW01_260314				✓				✓
ES1406761-021	26-MAR-2014 14:00	R01_260314_SN					✓			✓
ES1406761-022	26-MAR-2014 15:00	TRIP BLANK						✓		
ES1406761-023	26-MAR-2014 15:00	TRIP SPIKE	✓							

Matrix: **WATER**

Laboratory sample ID      Client sampling date / time      Client sample ID

			WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1406761-001	26-MAR-2014 15:00	VD_MW02	✓
ES1406761-002	26-MAR-2014 15:00	VD_MW03	✓
ES1406761-003	26-MAR-2014 15:00	VA_MW03_260314	✓
ES1406761-004	26-MAR-2014 15:00	VM_MW03_260314	✓
ES1406761-005	26-MAR-2014 15:00	VM_MW01_260314	✓
ES1406761-006	26-MAR-2014 15:00	VS_MW01_260314	✓
ES1406761-007	26-MAR-2014 15:00	VS_MW02_260314	✓
ES1406761-008	26-MAR-2014 15:00	VS_MW03_260314	✓
ES1406761-009	26-MAR-2014 15:00	VS_MW04_260314	✓
ES1406761-010	26-MAR-2014 15:00	D03_260314_SO	✓
ES1406761-011	26-MAR-2014 15:00	R03_260314_SO	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	Symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	Symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	Symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	Symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	Symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	Symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	Symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	Symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	Symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	Symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------











CHAIN OF CUSTODY

LABORATORY: ALS Laboratory please call...

DELICACAST 21 Burma Road... DELICACAST 24 Westall Road...

DELICACAST 5 Rese Gum Road... DELICACAST 14-15 Durrant Court...

DELICACAST 27-28 Woodspack Road... DELICACAST 14-15 Durrant Court...

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 0237747

SITE MANAGER: JOHN EWING

SAMPLER: SURESH NATHANAPATI

COC emailed to ALS? YES / NO

Email Reports to (will default to PM if no other addresses are listed): symphony.delaacast@erm.com

Email Invoice to (will default to PM if no other addresses are listed): symphony.delaacast@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS: Standard TAT may be longer for some tests e.g. Ultra Trace Organics

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

Table with columns: COC SEQUENCE NUMBER (Circle), COC: 1-7, OF: 1-7

RECEIVED BY: YES/NO/NA

DATE/TIME: YES/NO/NA

Table with columns: ANALYSIS USE, SAMPLE DETAILS, CONTAINER INFORMATION, ANALYSIS REQUIRED

Main data table with columns: LAB ID, SAMPLE ID, DATE / TIME, MATRIX, TYPE & PRESERVATIVE, TOTAL CONTAINERS, 8 METALS (W-2), 13 METALS (W-3) + B, Mo, Ti, Se, TPH/BTEX/PAH/PHENOLS (W-24), VOC, PCB, NT-1 (Ca, Mg, Na, K), NT-2 (Alk, SO4, Cl), PFOS/PFOA, Ultra Trace PAH, Ultra Trace Metals, Additional Information

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORG = Nitric Preserved ORG, SH = Sodium Hydroxide Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Airfreight Unpreserved Plastic, V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl Preserved Plastic, HS = HCl Preserved Speciation bottle, SP = Sulfuric Preserved Plastic, F = Formaldehyde Preserved Glass, Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406907</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : COLONGRA POWER STATION <b>Order number</b> : 0237749 <b>C-O-C number</b> : ---- <b>Sampler</b> : JOHN EWING <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 28-MAR-2014 <b>Issue Date</b> : 07-APR-2014  <b>No. of samples received</b> : 9 <b>No. of samples analysed</b> : 9
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



---

## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
  - **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
-



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
				ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.005	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.001	<0.001	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	0.012	<0.001	0.012	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.005	0.006	0.005	0.020
Zinc	7440-66-6	0.005	mg/L	0.022	0.034	0.028	0.019	0.054
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
27-MAR-2014 12:16					
	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005

Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP074D: Fumigants - Continued</b>								
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
				ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	<0.02	----	----	----	----
PFOA	335-67-1	0.02	µg/L	<0.02	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	83.0	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	105	110	89.4	105
Toluene-D8	2037-26-5	0.1	%	110	111	116	93.4	98.0
4-Bromofluorobenzene	460-00-4	0.1	%	110	104	108	87.8	104
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.2	23.0	30.2	30.9	32.7
2-Chlorophenol-D4	93951-73-6	0.1	%	63.0	65.2	54.2	57.8	60.2
2,4,6-Tribromophenol	118-79-6	0.1	%	69.4	72.0	65.0	65.3	76.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.0	69.9	69.8	66.3	68.4
Anthracene-d10	1719-06-8	0.1	%	75.3	77.7	70.1	68.6	84.5
4-Terphenyl-d14	1718-51-0	0.1	%	65.8	69.4	60.7	62.2	81.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	108	112	91.7	108
Toluene-D8	2037-26-5	0.1	%	110	108	113	90.9	95.1
4-Bromofluorobenzene	460-00-4	0.1	%	112	102	107	86.9	101





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TS2	TB2	TS7	TB7	----
				27-MAR-2014 15:00	27-MAR-2014 15:00	27-MAR-2014 15:00	27-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406907-006	ES1406907-007	ES1406907-008	ES1406907-009	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	<20	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	<20	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	<20	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	16	<1	15	<1	----
Toluene	108-88-3	2	µg/L	15	<2	15	<2	----
Ethylbenzene	100-41-4	2	µg/L	15	<2	14	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	16	<2	16	<2	----
ortho-Xylene	95-47-6	2	µg/L	16	<2	16	<2	----
Total Xylenes	1330-20-7	2	µg/L	32	<2	32	<2	----
Sum of BTEX	----	1	µg/L	78	<1	76	<1	----
Naphthalene	91-20-3	5	µg/L	20	<5	19	<5	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	104	101	99.3	----
Toluene-D8	2037-26-5	0.1	%	93.2	94.0	94.6	93.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	85.6	87.1	86.1	83.5	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1406907</b>	<b>Page</b>	<b>: 1 of 15</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: COLONGRA POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 28-MAR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 07-APR-2014</b>
<b>Sampler</b>	<b>: JOHN EWING</b>	<b>No. of samples received</b>	<b>: 9</b>
<b>Order number</b>	<b>: 0237749</b>	<b>No. of samples analysed</b>	<b>: 9</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Lana Nguyen  
Pabi Subba  
Shobhna Chandra

#### Position

Senior Spectroscopist  
Senior LCMS Chemist  
Senior Organic Chemist  
Metals Coordinator

#### Accreditation Category

Sydney Inorganics  
Sydney Organics  
Sydney Organics  
Sydney Inorganics



---

### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3372496)</b>									
ES1406782-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0012	0.0012	0.0	0% - 50%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.017	0.017	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.014	0.011	20.7	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.353	0.370	4.8	0% - 20%
ES1406926-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.095	0.087	8.4	0% - 50%
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3372497)</b>									
ES1406896-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3375330)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3375330) - continued</b>									
ES1406907-001	VS_MW05_270314	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1406947-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3375330) - continued</b>											
ES1406907-001	VS_MW05_270314	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit				
ES1406947-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3375330)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3375330) - continued</b>									
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074G: Trihalomethanes (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1406947-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3373833)</b>									
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	1880	1920	2.2	0% - 20%
ES1406940-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375331)</b>									
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1406947-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3373833)</b>									
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	2350	2400	2.1	0% - 20%
ES1406940-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406947-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	123	118	4.5	0% - 20%	
		EP080: Toluene	108-88-3	2	µg/L	126	126	0.0	0% - 20%	
		EP080: Ethylbenzene	100-41-4	2	µg/L	89	90	1.4	0% - 20%	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	192	197	2.5	0% - 20%	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	178	177	0.8	0% - 20%	
ES1406940-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	78	82	5.3	0% - 50%	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1406947-003	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
<b>EP231: Perfluorinated Compounds (QC Lot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	4.41	4.34	1.6	0% - 20%	
		EP231: PFOA	335-67-1	0.02	µg/L	1.59	1.57	1.1	0% - 20%	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	0.4	0.3	0.0	No Limit	
ES1406761-010	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.3	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.4	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	94.5	78	114	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3367373)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	87.3	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3375330)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	110	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	114	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	112	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	112	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	113	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	110	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	113	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	112	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	113	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3375330)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	65.0	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	105	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3375330)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.6	72.8	127	
<b>EP074D: Fumigants (QCLot: 3375330)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	116	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	90.7	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	86.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	100	69	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	76.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	94.9	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	106	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	103	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	107	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	86.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	109	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	110	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	110	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	103	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	110	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	112	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	111	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	108	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	110	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	118	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	112	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	89.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	106	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	102	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	108	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	89.1	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	82.1	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	110	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	115	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	113	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	115	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	111	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	112	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	111	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	112	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	111	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3375330)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074G: Trihalomethanes (QCLot: 3375330) - continued</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	112	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.6	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	89.6	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	93.6	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3375330)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	113	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3367371)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	70.7	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	72.4	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	76.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	71.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	69.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	85.1	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.5	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	69.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	57.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3367371)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	73.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	76.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	82.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3367371) - continued</b>									
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	74.9	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	77.0	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	85.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	81.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	66.2	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	77.1	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	79.2	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	71.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	88.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3367370)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	102	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	94.1	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	107	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	109	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3367370)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.3	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	100	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833) - continued</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	108	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	113	75	127	
<b>EP080: BTEXN (QCLot: 3373833)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	113	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	109	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	108	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	118	70	124	
<b>EP080: BTEXN (QCLot: 3375331)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	107	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	106	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124	
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>									
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	79.6	70	136	
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	73.2	72	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	81.0	61	145	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>								
ES1406782-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.4 mg/L	93.4	70	130	
		EG020A-F: Cadmium	7440-43-9	0.1 mg/L	86.2	70	130	
		EG020A-F: Chromium	7440-47-3	0.4 mg/L	83.2	70	130	
		EG020A-F: Copper	7440-50-8	.4 mg/L	88.5	70	130	
		EG020A-F: Lead	7439-92-1	.4 mg/L	83.2	70	130	
		EG020A-F: Nickel	7440-02-0	.4 mg/L	76.9	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496) - continued</b>							
ES1406782-001	Anonymous	EG020A-F: Zinc	7440-66-6	.4 mg/L	81.2	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>							
ES1406907-001	VS_MW05_270314	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.9	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>							
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	129	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	120	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>							
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	25 µg/L	126	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	325 µg/L	116	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	70	130
<b>EP080: BTEXN (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	70	130
		EP080: Toluene	108-88-3	25 µg/L	# Not Determined	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	# Not Determined	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	92.7	70	130
<b>EP080: BTEXN (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: Benzene	71-43-2	25 µg/L	91.2	70	130
		EP080: Toluene	108-88-3	25 µg/L	104	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3375331) - continued</b>							
ES1406907-001	VS_MW05_270314	EP080: Naphthalene	91-20-3	25 µg/L	115	70	130
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>							
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	# 64.4	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	81.3	61	145

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	# 64.4	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	81.3	----	61	145	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>										
ES1406782-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.4 mg/L	93.4	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.1 mg/L	86.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.4 mg/L	83.2	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	.4 mg/L	88.5	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	.4 mg/L	83.2	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	.4 mg/L	76.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	.4 mg/L	81.2	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>										
ES1406907-001	VS_MW05_270314	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.9	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	----	70	130	----	----





Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3373833) - continued</b>										
ES1406905-001	Anonymous	EP080: Toluene	108-88-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	92.7	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>										
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	129	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	120	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>										
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	25 µg/L	126	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	325 µg/L	116	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: Benzene	71-43-2	25 µg/L	91.2	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	115	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406907</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: COLONGRA POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 28-MAR-2014
C-O-C number	: ----	Issue Date	: 07-APR-2014
Sampler	: JOHN EWING	No. of samples received	: 9
Order number	: 0237749	No. of samples analysed	: 9
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	---	23-SEP-2014	----	03-APR-2014	23-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	---	24-APR-2014	----	04-APR-2014	24-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Amber Glass Bottle - Unpreserved (EP066)</b> VS_MW05_270314		27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314, TB2, TB7	VK_MW01_270314, D01_270314_SN, TS2, TS7,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓

Page : 4 of 8  
 Work Order : ES1406907  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : COLONGRA POWER STATION



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VS_MW05_270314, VK_MW02_270314, VD_MW04_270314, TB7	VK_MW01_270314, D01_270314_SN, TB2,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b>								
VS_MW05_270314		27-MAR-2014	---	23-SEP-2014	----	01-APR-2014	23-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	18	0.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	31	12.9	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	18	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorbed onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP080/071: Total Petroleum Hydrocarbons	ES1406905-001	Anonymous	<b>C6 - C9 Fraction</b>	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1406905-001	Anonymous	<b>C6 - C10 Fraction</b>	C6_C10	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	<b>Benzene</b>	71-43-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	<b>Toluene</b>	108-88-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	<b>ortho-Xylene</b>	95-47-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	<b>PFOS</b>	1763-23-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	<b>PFOA</b>	335-67-1	64.4 %	72-134%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.





### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	18	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	1	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	18	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	1	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1406907**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : COLONGRA POWER STATION</b></p> <p><b>Order number : 0237749</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : JOHN EWING</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
--	--

#### Dates

<p><b>Date Samples Received : 28-MAR-2014</b></p> <p><b>Client Requested Due Date : 07-APR-2014</b></p>	<p><b>Issue Date : 31-MAR-2014 09:29</b></p> <p><b>Scheduled Reporting Date : <b>07-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 2.8°C - Ice present</b></p> <p><b>No. of samples received : 9</b></p> <p><b>No. of samples analysed : 9</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH(BTEXN)/PAH/Phenols/8 Metals
ES1406907-001	27-MAR-2014 12:16	VS_MW05_270314	✓	✓		✓		✓
ES1406907-002	27-MAR-2014 12:05	VK_MW01_270314		✓				✓
ES1406907-003	27-MAR-2014 12:48	VK_MW02_270314		✓				✓
ES1406907-004	27-MAR-2014 12:00	D01_270314_SN		✓				✓
ES1406907-005	27-MAR-2014 08:50	VD_MW04_270314		✓				✓
ES1406907-006	27-MAR-2014 15:00	TS2			✓			
ES1406907-007	27-MAR-2014 15:00	TB2					✓	
ES1406907-008	27-MAR-2014 15:00	TS7			✓			
ES1406907-009	27-MAR-2014 15:00	TB7					✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1406907</b> <b>Amendment</b> : <b>1</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT <b>Order number</b> : 0237749 <b>C-O-C number</b> : ---- <b>Sampler</b> : JOHN EWING <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 28-MAR-2014 <b>Issue Date</b> : 08-APR-2014  <b>No. of samples received</b> : 9 <b>No. of samples analysed</b> : 9
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



---

## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
  - **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
-



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
27-MAR-2014 12:16	27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005

Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.005	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.001	<0.001	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	0.012	<0.001	0.012	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.005	0.006	0.005	0.020
Zinc	7440-66-6	0.005	mg/L	0.022	0.034	0.028	0.019	0.054
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
				ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP074D: Fumigants - Continued</b>								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
Client sampling date / time	27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005

Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
				27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VS_MW05_270314	VK_MW01_270314	VK_MW02_270314	D01_270314_SN	VD_MW04_270314
Client sampling date / time	27-MAR-2014 12:16	27-MAR-2014 12:05	27-MAR-2014 12:48	27-MAR-2014 12:00	27-MAR-2014 08:50
	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005

Compound	CAS Number	LOR	Unit	ES1406907-001	ES1406907-002	ES1406907-003	ES1406907-004	ES1406907-005
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	<0.02	----	----	----	----
PFOA	335-67-1	0.02	µg/L	<0.02	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	----	----	----	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	83.0	----	----	----	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	105	110	89.4	105
Toluene-D8	2037-26-5	0.1	%	110	111	116	93.4	98.0
4-Bromofluorobenzene	460-00-4	0.1	%	110	104	108	87.8	104
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.2	23.0	30.2	30.9	32.7
2-Chlorophenol-D4	93951-73-6	0.1	%	63.0	65.2	54.2	57.8	60.2
2,4,6-Tribromophenol	118-79-6	0.1	%	69.4	72.0	65.0	65.3	76.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.0	69.9	69.8	66.3	68.4
Anthracene-d10	1719-06-8	0.1	%	75.3	77.7	70.1	68.6	84.5
4-Terphenyl-d14	1718-51-0	0.1	%	65.8	69.4	60.7	62.2	81.3
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	108	112	91.7	108
Toluene-D8	2037-26-5	0.1	%	110	108	113	90.9	95.1
4-Bromofluorobenzene	460-00-4	0.1	%	112	102	107	86.9	101



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TS2	TB2	TS7	TB7	----
				27-MAR-2014 15:00	27-MAR-2014 15:00	27-MAR-2014 15:00	27-MAR-2014 15:00	----
Compound	CAS Number	LOR	Unit	ES1406907-006	ES1406907-007	ES1406907-008	ES1406907-009	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	<20	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	<20	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	16	<1	15	<1	----
Toluene	108-88-3	2	µg/L	15	<2	15	<2	----
Ethylbenzene	100-41-4	2	µg/L	15	<2	14	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	16	<2	16	<2	----
ortho-Xylene	95-47-6	2	µg/L	16	<2	16	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	32	<2	32	<2	----
^ Sum of BTEX	----	1	µg/L	78	<1	76	<1	----
Naphthalene	91-20-3	5	µg/L	20	<5	19	<5	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	104	101	99.3	----
Toluene-D8	2037-26-5	0.1	%	93.2	94.0	94.6	93.4	----
4-Bromofluorobenzene	460-00-4	0.1	%	85.6	87.1	86.1	83.5	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1406907</b>	<b>Page</b>	: 1 of 15
<b>Amendment</b>	: <b>1</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>C-O-C number</b>	: ----	<b>Date Samples Received</b>	: 28-MAR-2014
<b>Sampler</b>	: JOHN EWING	<b>Issue Date</b>	: 08-APR-2014
<b>Order number</b>	: 0237749		
<b>Quote number</b>	: SY/050/14 V3	<b>No. of samples received</b>	: 9
		<b>No. of samples analysed</b>	: 9

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3372496)</b>									
ES1406782-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0012	0.0012	0.0	0% - 50%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.017	0.017	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.014	0.011	20.7	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.353	0.370	4.8	0% - 20%
ES1406926-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.095	0.087	8.4	0% - 50%
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3372497)</b>									
ES1406896-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3375330)</b>									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3375330) - continued</b>									
ES1406907-001	VS_MW05_270314	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1406947-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1406947-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3375330)</b>									
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit





Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3375330) - continued</b>									
ES1406907-001	VS_MW05_270314	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1406947-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit

**EP074F: Halogenated Aromatic Compounds (QC Lot: 3375330)**



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)			
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3375330) - continued</b>												
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit			
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit			
ES1406947-003	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit			
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit			
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit			
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit			
<b>EP074G: Trihalomethanes (QC Lot: 3375330)</b>	ES1406907-001	VS_MW05_270314	EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit		
			EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
			EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit		
			EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit		
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit		
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit		
			ES1406947-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
					EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
EP074: Dibromochloromethane	124-48-1	5			µg/L	<5	<5	0.0	No Limit			
EP074: Bromoform	75-25-2	5			µg/L	<5	<5	0.0	No Limit			
<b>EP074H: Naphthalene (QC Lot: 3375330)</b>												
ES1406907-001	VS_MW05_270314	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit			
ES1406947-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit			
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3373833)</b>												
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	1880	1920	2.2	0% - 20%			
ES1406940-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit			
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375331)</b>												
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit			
ES1406947-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit			
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3373833)</b>												
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	2350	2400	2.1	0% - 20%			
ES1406940-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit			



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1406947-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	123	118	4.5	0% - 20%	
		EP080: Toluene	108-88-3	2	µg/L	126	126	0.0	0% - 20%	
		EP080: Ethylbenzene	100-41-4	2	µg/L	89	90	1.4	0% - 20%	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	192	197	2.5	0% - 20%	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	178	177	0.8	0% - 20%	
ES1406940-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	78	82	5.3	0% - 50%	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
ES1406907-001	VS_MW05_270314	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
ES1406947-003	Anonymous		106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
ES1406947-003	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
<b>EP231: Perfluorinated Compounds (QC Lot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	4.41	4.34	1.6	0% - 20%	
		EP231: PFOA	335-67-1	0.02	µg/L	1.59	1.57	1.1	0% - 20%	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	0.4	0.3	0.0	No Limit	
ES1406761-010	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit	



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.3	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.2	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.4	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	94.5	78	114	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3367373)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	87.3	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3375330)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	110	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	114	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	112	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	112	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	113	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	110	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	113	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	112	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	113	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3375330)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	65.0	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	105	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3375330)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.6	72.8	127	
<b>EP074D: Fumigants (QCLot: 3375330)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	116	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	90.7	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	86.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	100	69	117	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	76.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	94.9	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	106	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	103	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	107	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	86.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	109	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	110	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	110	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	103	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	110	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	112	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	111	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	108	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	110	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	118	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	112	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	89.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	106	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	102	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	108	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	89.1	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	82.1	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	110	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	115	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	113	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	115	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	111	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	112	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	111	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	112	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	111	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3375330)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074G: Trihalomethanes (QCLot: 3375330) - continued</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	112	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.6	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	89.6	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	93.6	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3375330)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	113	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3367371)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	70.7	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	72.4	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	76.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	71.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	69.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	85.1	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.5	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	69.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	57.4	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3367371)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	73.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	76.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	82.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3367371) - continued</b>									
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	74.9	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	77.0	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	85.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	81.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	66.2	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	77.1	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	79.2	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	71.7	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	88.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3367370)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	102	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	94.1	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	107	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	109	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3367370)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.3	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	100	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>									





Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833) - continued</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	108	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	113	75	127	
<b>EP080: BTEXN (QCLot: 3373833)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	113	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	109	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	108	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	118	70	124	
<b>EP080: BTEXN (QCLot: 3375331)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	107	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	106	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124	
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>									
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	79.6	70	136	
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	73.2	72	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	81.0	61	145	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>								
ES1406782-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.4 mg/L	93.4	70	130	
		EG020A-F: Cadmium	7440-43-9	0.1 mg/L	86.2	70	130	
		EG020A-F: Chromium	7440-47-3	0.4 mg/L	83.2	70	130	
		EG020A-F: Copper	7440-50-8	.4 mg/L	88.5	70	130	
		EG020A-F: Lead	7439-92-1	.4 mg/L	83.2	70	130	
		EG020A-F: Nickel	7440-02-0	.4 mg/L	76.9	70	130	





Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496) - continued</b>							
ES1406782-001	Anonymous	EG020A-F: Zinc	7440-66-6	.4 mg/L	81.2	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>							
ES1406907-001	VS_MW05_270314	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.9	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>							
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	129	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	120	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>							
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	25 µg/L	126	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	325 µg/L	116	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	70	130
<b>EP080: BTEXN (QCLot: 3373833)</b>							
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	70	130
		EP080: Toluene	108-88-3	25 µg/L	# Not Determined	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	# Not Determined	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	92.7	70	130
<b>EP080: BTEXN (QCLot: 3375331)</b>							
ES1406907-001	VS_MW05_270314	EP080: Benzene	71-43-2	25 µg/L	91.2	70	130
		EP080: Toluene	108-88-3	25 µg/L	104	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080: BTEXN (QCLot: 3375331) - continued</b>							
ES1406907-001	VS_MW05_270314	EP080: Naphthalene	91-20-3	25 µg/L	115	70	130
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>							
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	# 64.4	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	81.3	61	145

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3368134)</b>										
EP1402377-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	# 64.4	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	81.3	----	61	145	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3372496)</b>										
ES1406782-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.4 mg/L	93.4	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.1 mg/L	86.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.4 mg/L	83.2	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	.4 mg/L	88.5	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	.4 mg/L	83.2	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	.4 mg/L	76.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	.4 mg/L	81.2	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3372497)</b>										
ES1406907-001	VS_MW05_270314	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.9	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	# Not Determined	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	# Not Determined	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3373833)</b>										
ES1406905-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	# Not Determined	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3373833) - continued</b>										
ES1406905-001	Anonymous	EP080: Toluene	108-88-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	# Not Determined	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	92.7	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3375330)</b>										
ES1406907-001	VS_MW05_270314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	129	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	120	----	70	130	----	----
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3375330)</b>										
ES1406907-001	VS_MW05_270314	EP074: Chlorobenzene	108-90-7	25 µg/L	126	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C9 Fraction	----	325 µg/L	116	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3375331)</b>										
ES1406907-001	VS_MW05_270314	EP080: Benzene	71-43-2	25 µg/L	91.2	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	115	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1406907</b>	Page	: 1 of 8
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 28-MAR-2014
Sampler	: JOHN EWING	Issue Date	: 08-APR-2014
Order number	: 0237749		
Quote number	: SY/050/14 V3	No. of samples received	: 9
		No. of samples analysed	: 9

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	---	23-SEP-2014	----	03-APR-2014	23-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	---	24-APR-2014	----	04-APR-2014	24-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Amber Glass Bottle - Unpreserved (EP066)</b> VS_MW05_270314		27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314	VK_MW01_270314, D01_270314_SN,	27-MAR-2014	01-APR-2014	03-APR-2014	✓	03-APR-2014	11-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VS_MW05_270314, VK_MW02_270314, VD_MW04_270314, TB2, TB7	VK_MW01_270314, D01_270314_SN, TS2, TS7,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓

Page : 4 of 8  
 Work Order : ES1406907 Amendment 1  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VS_MW05_270314, VK_MW02_270314, VD_MW04_270314, TB7	VK_MW01_270314, D01_270314_SN, TB2,	27-MAR-2014	04-APR-2014	10-APR-2014	✓	04-APR-2014	10-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b>								
VS_MW05_270314		27-MAR-2014	---	23-SEP-2014	----	01-APR-2014	23-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	18	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	31	12.9	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.8	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	18	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	19	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	31	6.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorbed onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EP080/071: Total Petroleum Hydrocarbons	ES1406905-001	Anonymous	C6 - C9 Fraction	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1406905-001	Anonymous	C6 - C10 Fraction	C6_C10	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	Benzene	71-43-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	Toluene	108-88-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080: BTEXN	ES1406905-001	Anonymous	ortho-Xylene	95-47-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	PFOS	1763-23-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231: Perfluorinated Compounds	EP1402377-001	Anonymous	PFOA	335-67-1	64.4 %	72-134%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.



## Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	18	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	1	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	18	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	1	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	19	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407022</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SN <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 31-MAR-2014 <b>Issue Date</b> : 08-APR-2014  <b>No. of samples received</b> : 12 <b>No. of samples analysed</b> : 12
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VK_MW03_280314	VK_MW04_280314	VK_MW07B_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
				ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.002	0.003	<0.001
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.13	0.08	0.06
Barium	7440-39-3	0.001	mg/L	0.053	0.068	0.147	0.160	0.307
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	0.0002
Cobalt	7440-48-4	0.001	mg/L	0.007	0.007	0.029	0.022	0.023
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.001	0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.003	<0.001	0.012	0.004
Manganese	7439-96-5	0.001	mg/L	0.138	0.293	4.59	2.09	2.24
Nickel	7440-02-0	0.001	mg/L	0.006	0.010	0.016	0.012	0.030
Lead	7439-92-1	0.001	mg/L	<0.001	0.032	<0.001	0.039	0.056
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.034	0.036	0.015	0.061	0.060
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VK_MW03_280314	VK_MW04_280314	VK_MW07B_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
				ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VK_MW03_280314	VK_MW04_280314	VK_MW07B_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
				ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.6	25.8	24.8	24.9	25.1
2-Chlorophenol-D4	93951-73-6	0.1	%	53.3	57.2	52.6	52.3	53.2
2,4,6-Tribromophenol	118-79-6	0.1	%	68.8	88.5	71.3	75.4	90.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	69.0	80.7	74.3	71.5	72.6
Anthracene-d10	1719-06-8	0.1	%	76.8	59.5	83.0	58.1	74.7
4-Terphenyl-d14	1718-51-0	0.1	%	57.8	68.2	63.5	64.8	67.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	103	112	98.0	93.3	88.1
Toluene-D8	2037-26-5	0.1	%	106	122	94.0	95.1	97.5
4-Bromofluorobenzene	460-00-4	0.1	%	102	116	91.7	93.4	89.4



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
				ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.001	0.003	<0.001
Boron	7440-42-8	0.05	mg/L	0.15	0.07	0.17	0.07	<0.05
Barium	7440-39-3	0.001	mg/L	0.059	0.058	0.095	0.164	<0.001
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0001	0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.002	0.004	0.138	0.021	<0.001
Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.003	0.014	<0.001
Manganese	7439-96-5	0.001	mg/L	0.201	0.379	10.8	2.20	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.023	0.011	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.039	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	0.02	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.017	0.015	0.045	0.064	<0.005
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.8	23.9	26.7	24.1	31.2
2-Chlorophenol-D4	93951-73-6	0.1	%	53.3	49.0	54.8	49.0	61.3
2,4,6-Tribromophenol	118-79-6	0.1	%	78.2	57.8	83.2	57.4	70.7
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	75.0	58.7	70.8	63.7	73.4
Anthracene-d10	1719-06-8	0.1	%	72.3	66.4	77.2	62.4	57.6
4-Terphenyl-d14	1718-51-0	0.1	%	65.7	55.5	71.0	58.6	68.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.0	112	108	97.7	92.2
Toluene-D8	2037-26-5	0.1	%	105	108	114	98.7	86.6
4-Bromofluorobenzene	460-00-4	0.1	%	95.8	104	108	96.1	85.8



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	---	---	---
				28-MAR-2014 15:00	28-MAR-2014 15:00	---	---	---
				ES1407022-011	ES1407022-012	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	13	---	---	---
Toluene	108-88-3	2	µg/L	<2	13	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	13	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	14	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	14	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	28	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	67	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	17	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	95.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	104	88.5	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	104	89.7	---	---	---



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407022</b>	Page	: 1 of 9
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 31-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 08-APR-2014
<b>Sampler</b>	: SN	<b>No. of samples received</b>	: 12
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 12
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### *Signatories*

Celine Conceicao  
Lana Nguyen  
Pabi Subba

#### *Position*

Senior Spectroscopist  
Senior LCMS Chemist  
Senior Organic Chemist

#### *Accreditation Category*

Sydney Inorganics  
Sydney Organics  
Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC





### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374736)</b>									
ES1407022-003	VK_MW07B_280314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.147	0.149	1.3	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.029	0.028	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	4.59	4.63	0.9	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.016	0.017	7.4	0% - 50%
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.13	0.12	0.0	No Limit		
ES1407023-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.044	0.041	5.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.010	0.011	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.344	0.323	6.2	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.037	0.040	7.3	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374735)</b>									
ES1407022-001	VK_MW03_280314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407023-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375295)</b>									

Page : 4 of 9  
 Work Order : ES1407022  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375295) - continued</b>									
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3375295)</b>									
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3375295)</b>									
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.1	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.7	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.0	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.9	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	89.2	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	100	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	92.0	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	90.8	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3370506)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	42.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.8	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	74.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	66.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	68.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.9	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	73.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	69.0	64.3	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3370506) - continued</b>									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	65.6	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.5	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	53.3	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3370506)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.9	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.4	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.4	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	71.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	73.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.5	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	70.1	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	67.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	76.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	77.2	61.2	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3370506) - continued</b>									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	67.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370505)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	102	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.6	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	89.4	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	110	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370505)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	85.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	102	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	116	75	127	
<b>EP080: BTEXN (QCLot: 3375295)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.1	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>								
ES1407022-004	VK_MW06_280314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	70	130	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	106	70	130	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	109	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	106	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736) - continued</b>								
ES1407022-004	VK_MW06_280314	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	101	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	70	130	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	70	130	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	98.8	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>								
ES1407022-002	VK_MW04_280314	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.1	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	25 µg/L	89.9	70	130	
		EP080: Toluene	108-88-3	25 µg/L	103	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70	130	
	91-20-3	25 µg/L	123	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
						Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration		MS	MSD	Low	High	Value	Control Limit	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>												
ES1407022-002	VK_MW04_280314	EG035F: Mercury	7439-97-6	0.0100 mg/L		71.1	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>												
ES1407022-004	VK_MW06_280314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L		105	----	70	130	----	----	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L		106	----	70	130	----	----	
		EG020A-F: Barium	7440-39-3	0.2 mg/L		109	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L		106	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L		102	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736) - continued</b>										
ES1407022-004	VK_MW06_280314	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	101	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	98.8	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	25 µg/L	89.9	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	103	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	110	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	123	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407022</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 31-MAR-2014
C-O-C number	: ----	Issue Date	: 08-APR-2014
Sampler	: SN	No. of samples received	: 12
Order number	: 0237747	No. of samples analysed	: 12
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	---	24-SEP-2014	----	04-APR-2014	24-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	---	25-APR-2014	----	07-APR-2014	25-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN, TRIP BLANK,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN, TRIP SPIKE	28-MAR-2014	06-APR-2014	11-APR-2014	✓	06-APR-2014	11-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VK_MW03_280314, VK_MW07B_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN, TRIP BLANK	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN,	28-MAR-2014	06-APR-2014	11-APR-2014	✓	06-APR-2014	11-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	11	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	11	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1407022-004	VK_MW06_280314	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	11	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	11	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	11	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	11	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1407022</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: SN</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 31-MAR-2014</b>	<b>Issue Date</b>	<b>: 01-APR-2014 21:36</b>
<b>Client Requested Due Date</b>	<b>: 08-APR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 08-APR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.4°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 12</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 12</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EP080 BTEXN	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1407022-001	28-MAR-2014 07:52	VK_MW03_280314	✓		✓		✓
ES1407022-002	28-MAR-2014 08:28	VK_MW04_280314	✓		✓		✓
ES1407022-003	28-MAR-2014 09:47	VK_MW07B_280314	✓		✓		✓
ES1407022-004	28-MAR-2014 10:34	VK_MW06_280314	✓		✓		✓
ES1407022-005	28-MAR-2014 11:26	VK_MW05_280314	✓		✓		✓
ES1407022-006	28-MAR-2014 12:35	VJ_MW02_280314	✓		✓		✓
ES1407022-007	28-MAR-2014 13:24	VJ_MW10_280314	✓		✓		✓
ES1407022-008	28-MAR-2014 14:04	VJ_MW09_280314	✓		✓		✓
ES1407022-009	28-MAR-2014 10:00	D01_280314_SN	✓		✓		✓
ES1407022-010	28-MAR-2014 14:00	R01_280314_SN	✓		✓		✓
ES1407022-011	28-MAR-2014 15:00	TRIP BLANK				✓	
ES1407022-012	28-MAR-2014 15:00	TRIP SPIKE		✓			

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- \*AU Certificate of Analysis - NATA ( COA ) Email john.ewing@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email john.ewing@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email john.ewing@erm.com
- Chain of Custody (CoC) ( COC ) Email john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG ) Email john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT ) Email john.ewing@erm.com
- EDI Format - XTab ( XTAB ) Email john.ewing@erm.com

### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA ( COA ) Email symphony.deltacoast@erm.com
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI ) Email symphony.deltacoast@erm.com
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC ) Email symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) Email symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV ) Email symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC ) Email symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG ) Email symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS\_V5\_ERM ) Email symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT ) Email symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB ) Email symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV ) Email au.accounts@erm.com

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407022</b> <b>Amendment</b> : <b>1</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : <b>JOHN EWING</b> <b>Address</b> : <b>GROUND FLOOR</b> <b>33 SAUNDERS STREET, PYRMONT NSW 2009</b> <b>LOCKED BAG 24</b> <b>BROADWAY NSW, AUSTRALIA 2007</b>  <b>E-mail</b> : <b>john.ewing@erm.com</b> <b>Telephone</b> : <b>+61 02 8584 8888</b> <b>Facsimile</b> : <b>+61 02 8584 8800</b> <b>Project</b> : <b>VALES POINT POWER STATION</b> <b>Order number</b> : <b>0237747</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>SN</b> <b>Site</b> : <b>----</b>  <b>Quote number</b> : <b>SY/050/14 V3</b>	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 31-MAR-2014 <b>Issue Date</b> : 16-APR-2014  <b>No. of samples received</b> : 12 <b>No. of samples analysed</b> : 12
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VK_MW03_280314	VK_MW04_280314	VK_MW07_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
				ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.002	0.003	<0.001
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.13	0.08	0.06
Barium	7440-39-3	0.001	mg/L	0.053	0.068	0.147	0.160	0.307
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	0.0002
Cobalt	7440-48-4	0.001	mg/L	0.007	0.007	0.029	0.022	0.023
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.001	0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.003	<0.001	0.012	0.004
Manganese	7439-96-5	0.001	mg/L	0.138	0.293	4.59	2.09	2.24
Nickel	7440-02-0	0.001	mg/L	0.006	0.010	0.016	0.012	0.030
Lead	7439-92-1	0.001	mg/L	<0.001	0.032	<0.001	0.039	0.056
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.034	0.036	0.015	0.061	0.060
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VK_MW03_280314	VK_MW04_280314	VK_MW07_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
Compound	CAS Number	LOR	Unit	ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VK_MW03_280314	VK_MW04_280314	VK_MW07_280314	VK_MW06_280314	VK_MW05_280314
				28-MAR-2014 07:52	28-MAR-2014 08:28	28-MAR-2014 09:47	28-MAR-2014 10:34	28-MAR-2014 11:26
Compound	CAS Number	LOR	Unit	ES1407022-001	ES1407022-002	ES1407022-003	ES1407022-004	ES1407022-005
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.6	25.8	24.8	24.9	25.1
2-Chlorophenol-D4	93951-73-6	0.1	%	53.3	57.2	52.6	52.3	53.2
2,4,6-Tribromophenol	118-79-6	0.1	%	68.8	88.5	71.3	75.4	90.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	69.0	80.7	74.3	71.5	72.6
Anthracene-d10	1719-06-8	0.1	%	76.8	59.5	83.0	58.1	74.7
4-Terphenyl-d14	1718-51-0	0.1	%	57.8	68.2	63.5	64.8	67.6
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	103	112	98.0	93.3	88.1
Toluene-D8	2037-26-5	0.1	%	106	122	94.0	95.1	97.5
4-Bromofluorobenzene	460-00-4	0.1	%	102	116	91.7	93.4	89.4



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
				ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.001	0.003	<0.001
Boron	7440-42-8	0.05	mg/L	0.15	0.07	0.17	0.07	<0.05
Barium	7440-39-3	0.001	mg/L	0.059	0.058	0.095	0.164	<0.001
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0001	0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.002	0.004	0.138	0.021	<0.001
Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.003	0.014	<0.001
Manganese	7439-96-5	0.001	mg/L	0.201	0.379	10.8	2.20	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.023	0.011	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.039	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	0.02	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.017	0.015	0.045	0.064	<0.005
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VJ_MW02_280314	VJ_MW10_280314	VJ_MW09_280314	D01_280314_SN	R01_280314_SN
				28-MAR-2014 12:35	28-MAR-2014 13:24	28-MAR-2014 14:04	28-MAR-2014 10:00	28-MAR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407022-006	ES1407022-007	ES1407022-008	ES1407022-009	ES1407022-010
<b>EP080: BTEXN - Continued</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	24.8	23.9	26.7	24.1	31.2
2-Chlorophenol-D4	93951-73-6	0.1	%	53.3	49.0	54.8	49.0	61.3
2,4,6-Tribromophenol	118-79-6	0.1	%	78.2	57.8	83.2	57.4	70.7
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	75.0	58.7	70.8	63.7	73.4
Anthracene-d10	1719-06-8	0.1	%	72.3	66.4	77.2	62.4	57.6
4-Terphenyl-d14	1718-51-0	0.1	%	65.7	55.5	71.0	58.6	68.4
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.0	112	108	97.7	92.2
Toluene-D8	2037-26-5	0.1	%	105	108	114	98.7	86.6
4-Bromofluorobenzene	460-00-4	0.1	%	95.8	104	108	96.1	85.8



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	---	---	---
				28-MAR-2014 15:00	28-MAR-2014 15:00	---	---	---
				ES1407022-011	ES1407022-012	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	13	---	---	---
Toluene	108-88-3	2	µg/L	<2	13	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	13	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	14	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	14	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	28	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	67	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	17	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	95.6	---	---	---
Toluene-D8	2037-26-5	0.1	%	104	88.5	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	104	89.7	---	---	---





## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407022</b>	<b>Page</b>	<b>: 1 of 9</b>
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>C-O-C number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 31-MAR-2014</b>
<b>Sampler</b>	<b>: SN</b>	<b>Issue Date</b>	<b>: 16-APR-2014</b>
<b>Order number</b>	<b>: 0237747</b>		
<b>Quote number</b>	<b>: SY/050/14 V3</b>	<b>No. of samples received</b>	<b>: 12</b>
		<b>No. of samples analysed</b>	<b>: 12</b>

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374736)</b>									
ES1407022-003	VK_MW07_280314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.147	0.149	1.3	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.029	0.028	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	4.59	4.63	0.9	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.016	0.017	7.4	0% - 50%
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.13	0.12	0.0	No Limit		
ES1407023-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.044	0.041	5.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.010	0.011	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.344	0.323	6.2	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.037	0.040	7.3	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374735)</b>									
ES1407022-001	VK_MW03_280314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407023-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375295)</b>									

Page : 4 of 9  
 Work Order : ES1407022 Amendment 1  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3375295) - continued</b>									
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3375295)</b>									
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3375295)</b>									
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1407022-009	D01_280314_SN	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.1	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.7	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.0	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.9	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	89.2	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	100	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	92.0	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	90.8	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3370506)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	42.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.8	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	74.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	66.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	68.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.9	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	73.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	69.0	64.3	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3370506) - continued</b>									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	65.6	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	72.5	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	53.3	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3370506)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.9	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.4	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.4	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	68.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	71.2	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	73.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.5	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	70.1	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	67.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	74.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	76.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	77.2	61.2	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3370506) - continued</b>									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	67.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3370505)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	102	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.6	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	89.4	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	110	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3370505)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	85.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	102	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	116	75	127	
<b>EP080: BTEXN (QCLot: 3375295)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.1	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>								
ES1407022-004	VK_MW06_280314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	70	130	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	106	70	130	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	109	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	106	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	70	130	





Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736) - continued</b>								
ES1407022-004	VK_MW06_280314	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	101	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	70	130	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	70	130	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	98.8	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>								
ES1407022-002	VK_MW04_280314	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.1	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3375295)</b>								
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	25 µg/L	89.9	70	130	
		EP080: Toluene	108-88-3	25 µg/L	103	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70	130	
	91-20-3	25 µg/L	123	70	130			

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>										
ES1407022-002	VK_MW04_280314	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.1	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>										
ES1407022-004	VK_MW06_280314	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	106	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	109	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	106	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736) - continued</b>										
ES1407022-004	VK_MW06_280314	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	101	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	98.8	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----
<b>EP080: BTEXN (QCLot: 3375295)</b>										
ES1407022-001	VK_MW03_280314	EP080: Benzene	71-43-2	25 µg/L	89.9	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	103	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	110	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	123	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407022</b>	Page	: 1 of 6
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 31-MAR-2014
Sampler	: SN	Issue Date	: 16-APR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 12
		No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	---	24-SEP-2014	----	04-APR-2014	24-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	---	25-APR-2014	----	07-APR-2014	25-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN	28-MAR-2014	03-APR-2014	04-APR-2014	✓	07-APR-2014	13-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN, TRIP BLANK,	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN, TRIP SPIKE	28-MAR-2014	06-APR-2014	11-APR-2014	✓	06-APR-2014	11-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VK_MW03_280314, VK_MW07_280314, VK_MW05_280314, VJ_MW10_280314, D01_280314_SN, TRIP BLANK	VK_MW04_280314, VK_MW06_280314, VJ_MW02_280314, VJ_MW09_280314, R01_280314_SN,	28-MAR-2014	06-APR-2014	11-APR-2014	✓	06-APR-2014	11-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1407022-004	VK_MW06_280314	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	: <b>ES1407022</b>		
<b>Amendment</b>	: <b>1</b>		
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>Page</b>	: 1 of 2
<b>Order number</b>	: 0237747	<b>Quote number</b>	: ES2014ENVRES0385 (SY/050/14 V3)
<b>C-O-C number</b>	: ----	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>Sampler</b>	: SN		

#### Dates

Date Samples Received	: 31-MAR-2014	Issue Date	: 16-APR-2014 09:57
Client Requested Due Date	: 08-APR-2014	Scheduled Reporting Date	: <b>08-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.4°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 12
Security Seal	: Intact.	No. of samples analysed	: 12

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EP080 BTEXN	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH(BTEXN)/PAH/Phenols
ES1407022-001	28-MAR-2014 07:52	VK_MW03_280314	✓		✓		✓
ES1407022-002	28-MAR-2014 08:28	VK_MW04_280314	✓		✓		✓
ES1407022-003	28-MAR-2014 09:47	VK_MW07_280314	✓		✓		✓
ES1407022-004	28-MAR-2014 10:34	VK_MW06_280314	✓		✓		✓
ES1407022-005	28-MAR-2014 11:26	VK_MW05_280314	✓		✓		✓
ES1407022-006	28-MAR-2014 12:35	VJ_MW02_280314	✓		✓		✓
ES1407022-007	28-MAR-2014 13:24	VJ_MW10_280314	✓		✓		✓
ES1407022-008	28-MAR-2014 14:04	VJ_MW09_280314	✓		✓		✓
ES1407022-009	28-MAR-2014 10:00	D01_280314_SN	✓		✓		✓
ES1407022-010	28-MAR-2014 14:00	R01_280314_SN	✓		✓		✓
ES1407022-011	28-MAR-2014 15:00	TRIP BLANK				✓	
ES1407022-012	28-MAR-2014 15:00	TRIP SPIKE		✓			

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory  
please tick →

**DADELAWS 21** Burns Road Porlocks SA 5085  
Ph: 08 8550 0800 E: adelaide@alsglobal.com

**DRISDAINE 32** Strand Street Stalford QLD 4003  
Ph: 07 3343 7222 E: samples.adelaide@alsglobal.com

**LYONSVILLE 05** Callernon Road Drive Clinton QLD 4600  
Ph: 07 747 5800 E: geraldine@alsglobal.com

**CHAC-KAY 73** Harbour Road Mackay QLD 4740  
Ph: 07 4844 0177 E: mackay@alsglobal.com

**DNEUBOURNE 24** Westall Road Springvale VIC 3171  
Ph: 05 8646 9600 E: samples.melbourne@alsglobal.com

**CHADSTONE 27** Sydney Road Mudgeoo NSW 2850  
Ph: 02 6372 6135 E: mudgeoo@alsglobal.com

**DNEWCASTLE 115** Essex Gm Road Warabrook NSW 2304  
Ph: 02 4988 9403 E: samples.newcastle@alsglobal.com

**DNOYRA 47** 3 Geary Place North Nowra NSW 2541  
Ph: 02 4223 2053 E: nowra@alsglobal.com

**DWOLLONGONG 89** Kerry Street, Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkemba@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** SURESH NATHALAPATI  
**CONTACT PH:** 0401 776 290

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

**ALS QUOTE NO.:**  
**COC SEQUENCE NUMBER (Circle):**  
 COC: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7

**FOR LABORATORY USE ONLY (Circle):**  
 Consistency Seal (tick box)?  YES  NO  N/A  
 Hazmat/Personnel Safety (tick box)?  YES  NO  N/A  
 Random Sample Temperature on Receipt?  YES  NO  N/A  
 Other comments?  YES  NO  N/A

**RELINQUISHED BY:** S. NATHALAPATI  
**RECEIVED BY:** Ravi  
**DATE/TIME:** 28-03-14 19:00

**RELINQUISHED BY:**  
**DATE/TIME:**

**RECEIVED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	ANALYSIS REQUIRED INCLUDING SURTES (NB. Sulte Codes must be listed to attract sulte price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information	
						13 METALS (W-3) + B, Mo, Tl, Se	8 METALS (W-2)	PHENOLS (W-24) TPHT/TEX/PAH	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOs/PFOA	Ultra Trace PAH	Ultra Trace Metals		
1	VIC-MW008-280314	28-03-14 7:52	(W)	AG, VS, N	5	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
2	VK-MW004-280314	" 9:28	(W)	AG, VS, N	5	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
3	VIC-MW078-280314	" 9:47	(W)	AG, VS, N	7	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
4	VIC-MW006-280314	" 10:34	(W)	AG, VS, N	5	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
5	VK-MW005-280314	" 11:26	(W)	AG, VS, N	5	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
6	VT-MW002-280314	" 12:35	(W)	AG, VS, N	4	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
7	VJ-MW010-280314	" 13:24	(W)	AG, VS, N	4	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
8	VJ-MW009-280314	" 14:04	(W)	AG, VS, N	4	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
9	DO2-280314-SN	" 10:00	(W)	AG, VS, N	5	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
10	ROT-280314-SN	" 14:00	(W)	AG, VS, N	4	X	X	X	X	X	X	X	X	X	X	X	Hold 30d 40ml vial on cold.
11	TRIP BLANK	" -	(W)	VS	1	X	X	X	X	X	X	X	X	X	X	X	TPH/BTEX ONLY
12	TRIP SPIKE	" -	(W)	VS	1	X	X	X	X	X	X	X	X	X	X	X	"
<b>TOTAL</b>					<b>50</b>												

**Environmental Division Sydney Work Order ES1407022**  
Telephone: +61-2-8784 8555

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/Cd Preserved; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Glass;  
 Z = Zinc Acetate Preserved Bottles; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407023</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SO <b>Site</b> : ----  <b>Quote number</b> : EN/009/13	<b>Page</b> : 1 of 8  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 31-MAR-2014 <b>Issue Date</b> : 08-APR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 5
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
-



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VE_MW02_280314	VE_MW03_280314	VC_MW04_280314	VA_MW06_280314	D04_280314_50
				28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00
				ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.003	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.031	0.006	0.002	0.003	0.003
Lead	7439-92-1	0.001	mg/L	0.006	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	0.093	0.037	0.029	0.013	0.021
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	<1	<1	<1
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Compound	CAS Number	LOR	Unit	VE_MW02_280314	VE_MW03_280314	VC_MW04_280314	VA_MW06_280314	D04_280314_50
				28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00
				ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005
<b>EP074D: Fumigants - Continued</b>								
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VE_MW02_280314	VE_MW03_280314	VC_MW04_280314	VA_MW06_280314	D04_280314_50
Client sampling date / time	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00
	ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005

Compound	CAS Number	LOR	Unit	ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005
<b>EP074F: Halogenated Aromatic Compounds - Continued</b>								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	3.4	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VE_MW02_280314	VE_MW03_280314	VC_MW04_280314	VA_MW06_280314	D04_280314_50
				28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VE_MW02_280314	VE_MW03_280314	VC_MW04_280314	VA_MW06_280314	D04_280314_50
Client sampling date / time	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00	28-MAR-2014 15:00
	ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005

Compound	CAS Number	LOR	Unit	ES1407023-001	ES1407023-002	ES1407023-003	ES1407023-004	ES1407023-005
<b>EP080: BTEXN - Continued</b>								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	----	----	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L	----	----	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	----	<0.1	<0.1	<0.1
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	109	82.8	83.2
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	105	109	110	110
Toluene-D8	2037-26-5	0.1	%	112	113	120	115	116
4-Bromofluorobenzene	460-00-4	0.1	%	106	104	108	108	110
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	21.9	25.6	30.4	21.1	18.0
2-Chlorophenol-D4	93951-73-6	0.1	%	45.9	53.8	61.9	44.6	38.9
2,4,6-Tribromophenol	118-79-6	0.1	%	45.6	57.3	73.3	31.1	30.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	54.3	67.2	83.0	47.2	47.8
Anthracene-d10	1719-06-8	0.1	%	56.9	72.0	72.2	48.3	57.8
4-Terphenyl-d14	1718-51-0	0.1	%	56.1	64.5	73.7	44.4	49.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.7	86.6	89.7	91.6	90.4
Toluene-D8	2037-26-5	0.1	%	120	122	130	123	124
4-Bromofluorobenzene	460-00-4	0.1	%	121	119	125	123	122



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407023</b>	<b>Page</b>	: 1 of 14
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 31-MAR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 08-APR-2014
<b>Sampler</b>	: SO	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 5
<b>Quote number</b>	: EN/009/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374736)</b>									
ES1407022-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.016	0.017	7.4	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	0.0	No Limit
ES1407023-002	VE_MW03_280314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.037	0.040	7.3	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374735)</b>									
ES1407022-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407023-001	VE_MW02_280314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3376189)</b>									
ES1407023-001	VE_MW02_280314	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1407194-002	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3376189)</b>									
ES1407023-001	VE_MW02_280314	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1407194-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3376189)</b>									
ES1407023-001	VE_MW02_280314	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1407194-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3376189)</b>									
ES1407023-001	VE_MW02_280314	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1407194-002	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3376189)</b>									
ES1407023-001	VE_MW02_280314	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3376189) - continued</b>									
ES1407023-001	VE_MW02_280314	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1407194-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit

**EP074F: Halogenated Aromatic Compounds (QC Lot: 3376189)**





Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3376189) - continued</b>										
ES1407023-001	VE_MW02_280314	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
ES1407194-002	Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074G: Trihalomethanes (QC Lot: 3376189)</b>	ES1407023-001	VE_MW02_280314	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
	ES1407194-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
<b>EP074H: Naphthalene (QC Lot: 3376189)</b>										
ES1407023-001	VE_MW02_280314	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
ES1407194-002	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3376190)</b>										
ES1407023-001	VE_MW02_280314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407194-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3376190)</b>										
ES1407023-001	VE_MW02_280314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407194-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3376190)</b>										
ES1407023-001	VE_MW02_280314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3376190) - continued</b>									
ES1407023-001	VE_MW02_280314	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1407194-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3372822)</b>									
EB1407298-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES1407199-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.7	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	90.8	78	114	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3369454)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	82.0	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3376189)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	111	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	112	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	106	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	107	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	111	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	106	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	113	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	110	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3376189)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.8	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	110	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	104	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	106	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3376189)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	106	72.8	127	
<b>EP074D: Fumigants (QCLot: 3376189)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	115	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	111	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	114	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	114	69	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3376189)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	113	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	117	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	112	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	105	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	115	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	112	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	117	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	87.0	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	114	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	110	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	113	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	110	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	113	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	99.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	110	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	111	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	103	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	117	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	115	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	109	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	# 114	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	112	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	104	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	106	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	119	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	128	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	112	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3376189)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	114	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	110	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	110	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	111	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	112	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	110	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	106	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	108	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3376189)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074G: Trihalomethanes (QCLot: 3376189) - continued</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	105	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	113	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	# 117	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	124	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3376189)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	107	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3369453)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	38.7	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	71.0	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	71.7	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	61.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.2	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.0	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	63.1	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	66.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	66.5	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	71.6	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	68.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	31.3	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3369453)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	60.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	69.0	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	64.6	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	70.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3369453) - continued</b>									
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	92.2	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	89.5	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	103	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	101	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	65.6	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	74.4	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	102	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	84.3	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	84.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	77.5	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3369452)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	103	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.0	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3376190)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	106	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3369452)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	84.5	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	87.8	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3376190)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	107	75	127	
<b>EP080: BTEXN (QCLot: 3376190)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080: BTEXN (QCLot: 3376190) - continued</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	114	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	121	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	102	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	103	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.9	70	124	
<b>EP231: Perfluorinated Compounds (QCLot: 3372822)</b>									
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	113	70	136	
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	104	72	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	86.5	61	145	

**Matrix Spike (MS) Report**

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>								
ES1407022-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	106	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>								
ES1407022-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.1	70	130	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3376189)</b>								
ES1407023-001	VE_MW02_280314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	127	70	130	
		EP074: Trichloroethene	79-01-6	25 µg/L	102	70	130	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3376189)</b>								
ES1407023-001	VE_MW02_280314	EP074: Chlorobenzene	108-90-7	25 µg/L	111	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3376190)</b>								
ES1407023-001	VE_MW02_280314	EP080: C6 - C9 Fraction	----	325 µg/L	119	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3376190)</b>								



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3376190) - continued</b>							
ES1407023-001	VE_MW02_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	70	130
<b>EP080: BTEXN (QCLot: 3376190)</b>							
ES1407023-001	VE_MW02_280314	EP080: Benzene	71-43-2	25 µg/L	104	70	130
		EP080: Toluene	108-88-3	25 µg/L	119	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	117	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	116	70	130
<b>EP231: Perfluorinated Compounds (QCLot: 3372822)</b>							
EB1407298-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	118	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	94.6	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	83.4	61	145

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3372822)</b>										
EB1407298-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	118	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	94.6	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	83.4	----	61	145	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374735)</b>										
ES1407022-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	71.1	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374736)</b>										
ES1407022-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	106	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	----	70	130	----	----
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3376189)</b>										
ES1407023-001	VE_MW02_280314	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	127	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	102	----	70	130	----	----





Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
				Concentration	MS	MSD	Low	High	Value	Control Limit	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3376189)</b>											
ES1407023-001	VE_MW02_280314	EP074: Chlorobenzene	108-90-7	25 µg/L	111	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3376190)</b>											
ES1407023-001	VE_MW02_280314	EP080: C6 - C9 Fraction	----	325 µg/L	119	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3376190)</b>											
ES1407023-001	VE_MW02_280314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3376190)</b>											
ES1407023-001	VE_MW02_280314	EP080: Benzene	71-43-2	25 µg/L	104	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	119	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	117	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	116	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407023</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 31-MAR-2014
C-O-C number	: ----	Issue Date	: 08-APR-2014
Sampler	: SO	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 5
Quote number	: EN/009/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	---	24-SEP-2014	----	04-APR-2014	24-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	---	25-APR-2014	----	07-APR-2014	25-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Amber Glass Bottle - Unpreserved (EP066)</b> VC_MW04_280314, D04_280314_50	VA_MW06_280314,	28-MAR-2014	03-APR-2014	04-APR-2014	✓	05-APR-2014	13-MAY-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	03-APR-2014	04-APR-2014	✓	05-APR-2014	13-MAY-2014	✓
<b>EP074D: Fumigants</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074F: Halogenated Aromatic Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074H: Naphthalene</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP074G: Trihalomethanes</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP074)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	03-APR-2014	04-APR-2014	✓	05-APR-2014	13-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	03-APR-2014	04-APR-2014	✓	05-APR-2014	13-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VE_MW02_280314, VC_MW04_280314, D04_280314_50	VE_MW03_280314, VA_MW06_280314,	28-MAR-2014	07-APR-2014	11-APR-2014	✓	07-APR-2014	11-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b> VC_MW04_280314, D04_280314_50	VA_MW06_280314,	28-MAR-2014	---	24-SEP-2014	----	03-APR-2014	24-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	11	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	14	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	11	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorbed onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074E: Halogenated Aliphatic Compounds	4034006-002	----	<b>1.1.1.2-Tetrachloroethane</b>	630-20-6	114 %	66-114%	<b>Recovery greater than upper control limit</b>
EP074G: Trihalomethanes	4034006-002	----	<b>Dibromochloromethane</b>	124-48-1	117 %	65-115%	<b>Recovery greater than upper control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	5	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	3	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	11	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	5	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	3	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	11	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1407023</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2013ENVRES0354 (EN/009/13)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: SO</b>		

#### Dates

<b>Date Samples Received</b>	<b>: 31-MAR-2014</b>	<b>Issue Date</b>	<b>: 01-APR-2014 15:08</b>
<b>Client Requested Due Date</b>	<b>: 08-APR-2014</b>	<b>Scheduled Reporting Date</b>	<b>: 08-APR-2014</b>

#### Delivery Details

<b>Mode of Delivery</b>	<b>: Carrier</b>	<b>Temperature</b>	<b>: 3.4°C - Ice present</b>
<b>No. of coolers/boxes</b>	<b>: 1 HARD</b>	<b>No. of samples received</b>	<b>: 5</b>
<b>Security Seal</b>	<b>: Intact.</b>	<b>No. of samples analysed</b>	<b>: 5</b>

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP231 Perfluorooxy/ Acids and Sulfonates by LC/MS/MS	WATER - W-02 8 Metals	WATER - W-24 TRH/BTEX/NP/AH/Phenols
ES1407023-001	28-MAR-2014 15:00	VE_MW02_280314		✓		✓	✓
ES1407023-002	28-MAR-2014 15:00	VE_MW03_280314		✓		✓	✓
ES1407023-003	28-MAR-2014 15:00	VC_MW04_280314	✓	✓	✓	✓	✓
ES1407023-004	28-MAR-2014 15:00	VA_MW06_280314	✓	✓	✓	✓	✓
ES1407023-005	28-MAR-2014 15:00	D04_280314_50	✓	✓	✓	✓	✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC)	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT	Email	symphony.deltanorth@erm.com
- EDI Format - XTab	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory:  
please tick →

BADELADE 24, Burrum Road, Chazalie, SA 5086  
Ph: 08 8269 0880 E: gels@als.com.au  
DREYFUS 30, 5th and Street, Sturtford QLD 4003  
Ph: 07 3293 7232 E: smp@als.com.au  
DGLADSTONE 46, C. Sturtford  
Ph: 07 7471 5800 E: gels@als.com.au

DMACKAY 78, Hepburn Road, Mackay, QLD 4740  
Ph: 07 4944 0177 E: mackay@als.com.au  
DNEOWRA 4/43 Cleary Place, North Nowra NSW 2541  
Ph: 02 4423 2603 E: nowra@als.com.au  
DPERTH 10, Hood Way, Malaga WA 6090  
Ph: 08 9209 7555 E: samples\_perth@als.com.au

DYDNEY 277-289 Woodpark Road, Smithfield NSW 2104  
Ph: 02 8764 8655 E: samples\_sydney@als.com.au  
LITTONSVILLE 14-15 Deema Court, Beith QLD 4818  
Ph: 07 4756 0600 E: townsville\_environmental@als.com.au  
DWOALONGONG 99, Kenny Street, Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkembla@als.com.au

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
PROJECT MANAGER: JOHN EWING  
CONTACT PH: 0401 776 290

TURNAROUND REQUIREMENTS :  Standard TAT (List due date);  Non Standard or urgent TAT (List due date):  
(Standard TAT may be longer for some tests e.g. Ultra Traces Organics)  
ALS QUOTE NO.:

SAMPLER: SUMPTON OSMAR  
COC emailed to ALS? ( YES / NO )

Email Reports to (will default to PMI if no other addresses are listed): symphony.dellanorth@erm.com  
Email Invoice to (will default to PMI if no other addresses are listed): symphony.dellanorth@erm.com

RECEIVED BY: Remi  
DATE/TIME: 31/14 19:00  
RELINQUISHED BY:  
DATE/TIME:

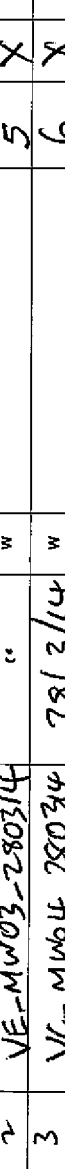
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LABORATORY USE ONLY (C/F24)  
Custody transferred?   
Fragile/essential items present upon receipt?   
Random Sample Temperature Receipt?   
Other comment:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS (refer to)	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Tl, Se	TPH/TEX/PAH PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VE-MW02-280314	28/3/14	W		5	X		X	X							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc. <b>PLEASE PLACE IN THIS BOTTLE ON HAND FOR ALL SAMPLES</b>
2	VE-MW03-280314	"	W		5	X		X								
3	VC-MW04-280314	28/3/14	W		6	X		X	X							
4	VA-MW06-280314	"	W		6	X		X	X							
5	004-280314-50	"	W		6	X		X	X							
					<b>TOTAL</b>											

ANALYSIS REQUIRED INCLUDING SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

Environmental Division  
Sydney  
Work Order  
**ES1407023**



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; r = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Spills; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407201</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SURESH NUTHALAPATI <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 12  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 09-APR-2014  <b>No. of samples received</b> : 13 <b>No. of samples analysed</b> : 13
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VT_MW038_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
				31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
Compound	CAS Number	LOR	Unit	ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0004	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.010	0.045	<0.001	0.596	0.001
Lead	7439-92-1	0.001	mg/L	0.001	<0.001	<0.001	0.010	<0.001
Nickel	7440-02-0	0.001	mg/L	0.010	0.003	<0.001	0.036	0.019
Zinc	7440-66-6	0.005	mg/L	0.032	0.050	0.006	0.283	0.028
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Client sampling date / time



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VT_MW038_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
				31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
				ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	5	<5	<5	<5

## EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VT_MW038_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
Client sampling date / time	31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
Compound	ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005

Compound	CAS Number	LOR	Unit	ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	25.2	11.9	24.5	13.9	20.0
2-Chlorophenol-D4	93951-73-6	0.1	%	58.8	23.9	57.9	31.1	48.4
2,4,6-Tribromophenol	118-79-6	0.1	%	69.0	54.3	63.6	36.6	67.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	78.0	44.3	79.6	42.0	64.6
Anthracene-d10	1719-06-8	0.1	%	77.7	69.4	73.5	40.0	68.7
4-Terphenyl-d14	1718-51-0	0.1	%	75.3	70.3	65.7	37.8	62.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	105	98.4	99.2	103
Toluene-D8	2037-26-5	0.1	%	113	112	104	122	114
4-Bromofluorobenzene	460-00-4	0.1	%	114	111	104	114	112





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
Compound	CAS Number	LOR	Unit	ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0002</b>	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<b>0.005</b>	<0.001	<b>0.002</b>	<0.001	<b>0.001</b>
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<b>0.020</b>	<b>0.002</b>	<b>0.012</b>	<b>0.004</b>	<b>0.001</b>
Zinc	7440-66-6	0.005	mg/L	<b>0.056</b>	<b>0.015</b>	<b>0.029</b>	<b>0.022</b>	<b>0.020</b>
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
				ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
				ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	20.4	23.4	23.2	20.1	24.7
2-Chlorophenol-D4	93951-73-6	0.1	%	46.7	55.4	52.7	47.0	59.6
2,4,6-Tribromophenol	118-79-6	0.1	%	73.4	71.4	68.0	50.5	65.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	64.6	76.8	70.7	60.4	76.0
Anthracene-d10	1719-06-8	0.1	%	81.8	71.7	73.8	59.1	74.8
4-Terphenyl-d14	1718-51-0	0.1	%	73.3	66.5	65.6	46.7	64.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	103	85.4	103	94.8	98.7
Toluene-D8	2037-26-5	0.1	%	96.9	102	115	111	109
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	97.6	110	106	104



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_310314_SN	TRIP BLANK	TRIP SPIKE	---	---
				31-MAR-2014 14:00	[02-APR-2014]	[02-APR-2014]	---	---
				ES1407201-011	ES1407201-012	ES1407201-013	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	R01_310314_SN	TRIP BLANK	TRIP SPIKE	---	---
31-MAR-2014 14:00		[02-APR-2014]	[02-APR-2014]	---	---
	ES1407201-011	ES1407201-012	ES1407201-013	---	---

Compound	CAS Number	LOR	Unit	ES1407201-011	ES1407201-012	ES1407201-013	---	---
----------	------------	-----	------	---------------	---------------	---------------	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	15	---	---
Toluene	108-88-3	2	µg/L	<2	<2	16	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	14	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	13	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	16	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	29	---	---
^ Sum of BTEX	----	1	µg/L	<1	<1	74	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	20	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_310314_SN	TRIP BLANK	TRIP SPIKE	----	----
				31-MAR-2014 14:00	[02-APR-2014]	[02-APR-2014]	----	----
				ES1407201-011	ES1407201-012	ES1407201-013	----	----
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	20.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	46.9	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	52.5	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	60.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	70.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	63.6	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.5	95.9	104	----	----
Toluene-D8	2037-26-5	0.1	%	104	98.2	88.7	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.5	98.1	88.1	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1407201</b>	<b>Page</b>	: 1 of 9
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 02-APR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 09-APR-2014
<b>Sampler</b>	: SURESH NUTHALAPATI	<b>No. of samples received</b>	: 13
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 13
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### *Signatories*

Celine Conceicao  
Pabi Subba  
Shobhna Chandra

#### *Position*

Senior Spectroscopist  
Senior Organic Chemist  
Metals Coordinator

#### *Accreditation Category*

Sydney Inorganics  
Sydney Organics  
Sydney Inorganics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374824)</b>										
ES1407089-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0023	0.0023	0.0	0% - 20%	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.129	0.127	1.3	0% - 20%	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.345	0.344	0.0	0% - 20%	
ES1407201-004	VG_MW02_310314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0004	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.596	0.598	0.4	0% - 20%	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.010	0.010	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.036	0.038	5.6	0% - 20%	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.283	0.283	0.0	0% - 20%	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374819)</b>										
ES1407024-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1407089-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374825)</b>										
ES1407201-005	VD_MW05_310314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1407202-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	

Page : 4 of 9  
 Work Order : ES1407201  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3377061) - continued</b>									
ES1407202-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.0	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.9	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	104	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	108	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	76.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	58.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	65.6	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	92.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	73.6	50	108	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899) - continued</b>									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	74.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	75.6	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.3	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	67.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	69.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372898)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	103	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372898)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	104	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127
<b>EP080: BTEXN (QCLot: 3377061)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.3	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	107	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>							
ES1407089-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	105	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	98.4	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>							
ES1407024-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.7	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>							
ES1407201-006	VD_MW01_310314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.4	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>								
ES1407201-001	VT_MW038_310314	EP080: C6 - C9 Fraction	----	325 µg/L	111	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>								
ES1407201-001	VT_MW038_310314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3377061)</b>								
ES1407201-001	VT_MW038_310314	EP080: Benzene	71-43-2	25 µg/L	72.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	97.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70	130	
	EP080: Naphthalene	91-20-3		25 µg/L	109	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>										
ES1407024-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.7	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>										
ES1407089-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	98.4	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>										
ES1407201-006	VD_MW01_310314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: C6 - C9 Fraction	----	325 µg/L	111	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3377061)</b>										
ES1407201-001	VT_MW038_310314	EP080: Benzene	71-43-2	25 µg/L	72.4	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	97.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	109	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407201</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: SURESH NUTHALAPATI	No. of samples received	: 13
Order number	: 0237747	No. of samples analysed	: 13
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	---	27-SEP-2014	----	04-APR-2014	27-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	---	28-APR-2014	----	07-APR-2014	28-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
TRIP BLANK,	TRIP SPIKE	02-APR-2014	07-APR-2014	16-APR-2014	✓	07-APR-2014	16-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
TRIP BLANK		02-APR-2014	07-APR-2014	16-APR-2014	✓	07-APR-2014	16-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VT_MW038_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	3	27	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1407089-002	Anonymous	Copper	7440-50-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG020F: Dissolved Metals by ICP-MS	ES1407089-002	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b>	<b>: ES1407201</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>Page</b>	<b>: 1 of 2</b>
<b>Order number</b>	<b>: 0237747</b>	<b>Quote number</b>	<b>: ES2014ENVRES0385 (SY/050/14 V3)</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>Sampler</b>	<b>: SURESH NUTHALAPATI</b>		

#### Dates

Date Samples Received	: 02-APR-2014	Issue Date	: 02-APR-2014 17:35
Client Requested Due Date	: 09-APR-2014	Scheduled Reporting Date	: <b>09-APR-2014</b>

#### Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.4°C - Ice present
No. of coolers/boxes	: 3 HARD	No. of samples received	: 13
Security Seal	: Intact.	No. of samples analysed	: 13

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1407201-001	31-MAR-2014 09:22	VT_MW038_310314			✓
ES1407201-002	31-MAR-2014 10:22	VG_MW01_310314			✓
ES1407201-003	31-MAR-2014 11:05	VT_MW01_310314			✓
ES1407201-004	31-MAR-2014 12:00	VG_MW02_310314			✓
ES1407201-005	31-MAR-2014 13:02	VD_MW05_310314			✓
ES1407201-006	31-MAR-2014 13:38	VD_MW01_310314			✓
ES1407201-007	31-MAR-2014 14:25	VG_MW03_310314			✓
ES1407201-008	31-MAR-2014 15:10	VG_MW04_310314			✓
ES1407201-009	31-MAR-2014 15:34	VU_MW13_310314			✓
ES1407201-010	31-MAR-2014 11:00	D01_310314_SN			✓
ES1407201-011	31-MAR-2014 14:00	R01_310314_SN			✓
ES1407201-012	[ 02-APR-2014 ]	TRIP BLANK		✓	
ES1407201-013	[ 02-APR-2014 ]	TRIP SPIKE	✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407201</b> <b>Amendment</b> : <b>1</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : <b>JOHN EWING</b> <b>Address</b> : <b>GROUND FLOOR</b> <b>33 SAUNDERS STREET, PYRMONT NSW 2009</b> <b>LOCKED BAG 24</b> <b>BROADWAY NSW, AUSTRALIA 2007</b>  <b>E-mail</b> : <b>john.ewing@erm.com</b> <b>Telephone</b> : <b>+61 02 8584 8888</b> <b>Facsimile</b> : <b>+61 02 8584 8800</b> <b>Project</b> : <b>VALES POINT POWER STATION</b> <b>Order number</b> : <b>0237747</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>SURESH NUTHALAPATI</b> <b>Site</b> : <b>----</b>  <b>Quote number</b> : <b>SY/050/14 V3</b>	<b>Page</b> : 1 of 12  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 11-APR-2014  <b>No. of samples received</b> : 13 <b>No. of samples analysed</b> : 13
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
-



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VT_MW03B_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
				31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
				ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0004	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.010	0.045	<0.001	0.596	0.001
Lead	7439-92-1	0.001	mg/L	0.001	<0.001	<0.001	0.010	<0.001
Nickel	7440-02-0	0.001	mg/L	0.010	0.003	<0.001	0.036	0.019
Zinc	7440-66-6	0.005	mg/L	0.032	0.050	0.006	0.283	0.028
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VT_MW03B_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
				31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
				ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	5	<5	<5	<5

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VT_MW03B_310314	VG_MW01_310314	VT_MW01_310314	VG_MW02_310314	VD_MW05_310314
Client sampling date / time	31-MAR-2014 09:22	31-MAR-2014 10:22	31-MAR-2014 11:05	31-MAR-2014 12:00	31-MAR-2014 13:02
	ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005

Compound	CAS Number	LOR	Unit	ES1407201-001	ES1407201-002	ES1407201-003	ES1407201-004	ES1407201-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	25.2	11.9	24.5	13.9	20.0
2-Chlorophenol-D4	93951-73-6	0.1	%	58.8	23.9	57.9	31.1	48.4
2,4,6-Tribromophenol	118-79-6	0.1	%	69.0	54.3	63.6	36.6	67.9
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	78.0	44.3	79.6	42.0	64.6
Anthracene-d10	1719-06-8	0.1	%	77.7	69.4	73.5	40.0	68.7
4-Terphenyl-d14	1718-51-0	0.1	%	75.3	70.3	65.7	37.8	62.7
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	105	98.4	99.2	103
Toluene-D8	2037-26-5	0.1	%	113	112	104	122	114
4-Bromofluorobenzene	460-00-4	0.1	%	114	111	104	114	112



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
				ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0002</b>	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<b>0.005</b>	<0.001	<b>0.002</b>	<0.001	<b>0.001</b>
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<b>0.020</b>	<b>0.002</b>	<b>0.012</b>	<b>0.004</b>	<b>0.001</b>
Zinc	7440-66-6	0.005	mg/L	<b>0.056</b>	<b>0.015</b>	<b>0.029</b>	<b>0.022</b>	<b>0.020</b>
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
Compound	CAS Number	LOR	Unit	ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VD_MW01_310314	VG_MW03_310314	VG_MW04_310314	VU_MW13_310314	D01_310314_SN
				31-MAR-2014 13:38	31-MAR-2014 14:25	31-MAR-2014 15:10	31-MAR-2014 15:34	31-MAR-2014 11:00
				ES1407201-006	ES1407201-007	ES1407201-008	ES1407201-009	ES1407201-010
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	20.4	23.4	23.2	20.1	24.7
2-Chlorophenol-D4	93951-73-6	0.1	%	46.7	55.4	52.7	47.0	59.6
2,4,6-Tribromophenol	118-79-6	0.1	%	73.4	71.4	68.0	50.5	65.8
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	64.6	76.8	70.7	60.4	76.0
Anthracene-d10	1719-06-8	0.1	%	81.8	71.7	73.8	59.1	74.8
4-Terphenyl-d14	1718-51-0	0.1	%	73.3	66.5	65.6	46.7	64.9
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	103	85.4	103	94.8	98.7
Toluene-D8	2037-26-5	0.1	%	96.9	102	115	111	109
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	97.6	110	106	104





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

R01_310314_SN	TRIP BLANK	TRIP SPIKE	---	---
31-MAR-2014 14:00	[02-APR-2014]	[02-APR-2014]	---	---

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1407201-011	ES1407201-012	ES1407201-013	---	---
----------	------------	-----	------	---------------	---------------	---------------	-----	-----

### EG020F: Dissolved Metals by ICP-MS

Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	<0.001	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	<0.005	---	---	---	---

### EG035F: Dissolved Mercury by FIMS

Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
---------	-----------	--------	------	---------	-----	-----	-----	-----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	R01_310314_SN	TRIP BLANK	TRIP SPIKE	---	---
31-MAR-2014 14:00		[02-APR-2014]	[02-APR-2014]	---	---
	ES1407201-011	ES1407201-012	ES1407201-013	---	---

Compound	CAS Number	LOR	Unit	ES1407201-011	ES1407201-012	ES1407201-013	---	---
----------	------------	-----	------	---------------	---------------	---------------	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	---	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	---	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	---	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	---	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	---	---	---	---

### EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	15	---	---
Toluene	108-88-3	2	µg/L	<2	<2	16	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	14	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	13	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	16	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	29	---	---
^ Sum of BTEX	----	1	µg/L	<1	<1	74	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	20	---	---

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_310314_SN	TRIP BLANK	TRIP SPIKE	----	----
				31-MAR-2014 14:00	[02-APR-2014]	[02-APR-2014]	----	----
				ES1407201-011	ES1407201-012	ES1407201-013	----	----
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	20.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	46.9	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	52.5	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	60.0	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	70.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	63.6	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	94.5	95.9	104	----	----
Toluene-D8	2037-26-5	0.1	%	104	98.2	88.7	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.5	98.1	88.1	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407201</b>	<b>Page</b>	<b>: 1 of 9</b>
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: JOHN EWING</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: john.ewing@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>		
<b>C-O-C number</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 02-APR-2014</b>
<b>Sampler</b>	<b>: SURESH NUTHALAPATI</b>	<b>Issue Date</b>	<b>: 11-APR-2014</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples received</b>	<b>: 13</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>	<b>No. of samples analysed</b>	<b>: 13</b>

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374824)</b>										
ES1407089-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0023	0.0023	0.0	0% - 20%	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.129	0.127	1.3	0% - 20%	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.345	0.344	0.0	0% - 20%	
ES1407201-004	VG_MW02_310314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0004	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.596	0.598	0.4	0% - 20%	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.010	0.010	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.036	0.038	5.6	0% - 20%	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.283	0.283	0.0	0% - 20%	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374819)</b>										
ES1407024-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1407089-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374825)</b>										
ES1407201-005	VD_MW05_310314	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1407202-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	

Page : 4 of 9  
 Work Order : ES1407201 Amendment 1  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3377061) - continued</b>									
ES1407202-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.0	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.9	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	104	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	108	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	76.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	58.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	65.6	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	92.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	73.6	50	108	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899) - continued</b>									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	74.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	75.6	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.3	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	67.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	69.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372898)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	103	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372898)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	104	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127
<b>EP080: BTEXN (QCLot: 3377061)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.3	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	107	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>							
ES1407089-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	105	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	98.4	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>							
ES1407024-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.7	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>							
ES1407201-006	VD_MW01_310314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.4	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>								
ES1407201-001	VT_MW03B_310314	EP080: C6 - C9 Fraction	----	325 µg/L	111	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>								
ES1407201-001	VT_MW03B_310314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3377061)</b>								
ES1407201-001	VT_MW03B_310314	EP080: Benzene	71-43-2	25 µg/L	72.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	97.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70	130	
	EP080: Naphthalene	91-20-3		25 µg/L	109	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374819)</b>										
ES1407024-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.7	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374824)</b>										
ES1407089-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	102	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	98.4	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374825)</b>										
ES1407201-006	VD_MW01_310314	EG035F: Mercury	7439-97-6	0.0100 mg/L	82.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: C6 - C9 Fraction	----	325 µg/L	111	----	70	130	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP080: BTEXN (QCLot: 3377061)</b>										
ES1407201-001	VT_MW03B_310314	EP080: Benzene	71-43-2	25 µg/L	72.4	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	97.3	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	109	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407201</b>	Page	: 1 of 6
Amendment	: <b>1</b>		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 02-APR-2014
Sampler	: SURESH NUTHALAPATI	Issue Date	: 11-APR-2014
Order number	: 0237747		
Quote number	: SY/050/14 V3	No. of samples received	: 13
		No. of samples analysed	: 13

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VT_MW03B_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	---	27-SEP-2014	----	04-APR-2014	27-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VT_MW03B_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	---	28-APR-2014	----	07-APR-2014	28-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VT_MW03B_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VT_MW03B_310314, VT_MW01_310314, VD_MW05_310314, VG_MW03_310314, VU_MW13_310314, R01_310314_SN	VG_MW01_310314, VG_MW02_310314, VD_MW01_310314, VG_MW04_310314, D01_310314_SN,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VT_MW03B_310314, VG_MW01_310314, VT_MW01_310314, VG_MW02_310314, VD_MW05_310314, VD_MW01_310314, VG_MW03_310314, VG_MW04_310314, VU_MW13_310314, D01_310314_SN, R01_310314_SN	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> TRIP BLANK, TRIP SPIKE	02-APR-2014	07-APR-2014	16-APR-2014	✓	07-APR-2014	16-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VT_MW03B_310314, VG_MW01_310314, VT_MW01_310314, VG_MW02_310314, VD_MW05_310314, VD_MW01_310314, VG_MW03_310314, VG_MW04_310314, VU_MW13_310314, D01_310314_SN, R01_310314_SN	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> TRIP BLANK	02-APR-2014	07-APR-2014	16-APR-2014	✓	07-APR-2014	16-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VT_MW03B_310314, VG_MW01_310314, VT_MW01_310314, VG_MW02_310314, VD_MW05_310314, VD_MW01_310314, VG_MW03_310314, VG_MW04_310314, VU_MW13_310314, D01_310314_SN, R01_310314_SN	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	3	27	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	2	27	7.4	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020F: Dissolved Metals by ICP-MS	ES1407089-002	Anonymous	Copper	7440-50-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG020F: Dissolved Metals by ICP-MS	ES1407089-002	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order** : ES1407201

**Amendment** : 1

**Client** : ENVIRO RESOURCES MANAGEMENT  
**Laboratory** : Environmental Division Sydney

**Contact** : JOHN EWING  
**Address** : GROUND FLOOR  
 33 SAUNDERS STREET, PYRMONT  
 NSW 2009  
 LOCKED BAG 24  
 BROADWAY NSW, AUSTRALIA 2007

**Contact** : Barbara Hanna  
**Address** : 277-289 Woodpark Road Smithfield  
 NSW Australia 2164

**E-mail** : john.ewing@erm.com  
**Telephone** : +61 02 8584 8888  
**Facsimile** : +61 02 8584 8800

**E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 2 8784 8555  
**Facsimile** : +61 2 8784 8555

**Project** : VALES POINT POWER STATION  
**Order number** : 0237747  
**C-O-C number** : ----  
**Site** : ----

**Page** : 1 of 2  
**Quote number** : ES2014ENVRES0385 (SY/050/14 V3)

**Sampler** : SURESH NUTHALAPATI  
**QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

**Date Samples Received** : 02-APR-2014  
**Client Requested Due Date** : 09-APR-2014  
**Issue Date** : 11-APR-2014 09:51  
**Scheduled Reporting Date** : **09-APR-2014**

#### Delivery Details

**Mode of Delivery** : Carrier  
**No. of coolers/boxes** : 3 HARD  
**Security Seal** : Intact.

**Temperature** : 3.4°C - Ice present  
**No. of samples received** : 13  
**No. of samples analysed** : 13

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1407201-001	31-MAR-2014 09:22	VT_MW03B_310314			✓
ES1407201-002	31-MAR-2014 10:22	VG_MW01_310314			✓
ES1407201-003	31-MAR-2014 11:05	VT_MW01_310314			✓
ES1407201-004	31-MAR-2014 12:00	VG_MW02_310314			✓
ES1407201-005	31-MAR-2014 13:02	VD_MW05_310314			✓
ES1407201-006	31-MAR-2014 13:38	VD_MW01_310314			✓
ES1407201-007	31-MAR-2014 14:25	VG_MW03_310314			✓
ES1407201-008	31-MAR-2014 15:10	VG_MW04_310314			✓
ES1407201-009	31-MAR-2014 15:34	VU_MW13_310314			✓
ES1407201-010	31-MAR-2014 11:00	D01_310314_SN			✓
ES1407201-011	31-MAR-2014 14:00	R01_310314_SN			✓
ES1407201-012	[ 02-APR-2014 ]	TRIP BLANK		✓	
ES1407201-013	[ 02-APR-2014 ]	TRIP SPIKE	✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407202</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : STEPHENIE BROOKES <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 11  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 09-APR-2014  <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 7
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW15_310314	VO_MW14_310314	VO_X_MW02_310314	VO_X_MW01_310314	VO_X_MW03_310314
				31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00
				ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	<0.001	----
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	----	<b>0.10</b>	----
Barium	7440-39-3	0.001	mg/L	<b>0.080</b>	<b>0.068</b>	----	<b>0.008</b>	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	<b>0.009</b>	<b>0.007</b>	----	<b>0.002</b>	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	<b>0.001</b>	<b>0.001</b>	----	<b>0.002</b>	----
Manganese	7439-96-5	0.001	mg/L	<b>0.241</b>	<b>0.193</b>	----	<b>0.095</b>	----
Nickel	7440-02-0	0.001	mg/L	<b>0.008</b>	<b>0.007</b>	----	<b>0.004</b>	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	<0.001	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	<0.01	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	----	<0.01	----
Zinc	7440-66-6	0.005	mg/L	<b>0.029</b>	<b>0.023</b>	----	<b>0.024</b>	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	----	<0.001	----
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	----	<0.001	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	----	----	<b>35</b>	----	<2
Arsenic	7440-38-2	0.5	µg/L	----	----	<b>16.9</b>	----	<b>8.4</b>
Barium	7440-39-3	1	µg/L	----	----	<b>87</b>	----	<b>127</b>
Beryllium	7440-41-7	0.1	µg/L	----	----	<b>3.2</b>	----	<0.1
Boron	7440-42-8	100	µg/L	----	----	<100	----	<b>739</b>
Cadmium	7440-43-9	0.2	µg/L	----	----	<0.2	----	<0.2
Chromium	7440-47-3	0.5	µg/L	----	----	<0.5	----	<0.5
Cobalt	7440-48-4	0.2	µg/L	----	----	<b>53.8</b>	----	<b>38.4</b>
Copper	7440-50-8	1	µg/L	----	----	<b>3</b>	----	<b>1</b>
Lead	7439-92-1	0.2	µg/L	----	----	<b>2.5</b>	----	<0.2
Manganese	7439-96-5	0.5	µg/L	----	----	<b>3540</b>	----	<b>4180</b>
Molybdenum	7439-98-7	0.1	µg/L	----	----	<b>0.2</b>	----	<b>0.5</b>
Nickel	7440-02-0	0.5	µg/L	----	----	<b>117</b>	----	<b>16.7</b>
Thallium	7440-28-0	0.1	µg/L	----	----	<0.1	----	<0.1
Vanadium	7440-62-2	0.5	µg/L	----	----	<b>0.8</b>	----	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	VO_MW15_310314	VO_MW14_310314	VO_X_MW02_310314	VO_X_MW01_310314	VO_X_MW03_310314
31-MAR-2014 15:00	ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005

Compound	CAS Number	LOR	Unit	ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005
----------	------------	-----	------	---------------	---------------	---------------	---------------	---------------

### EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued

Zinc	7440-66-6	5	µg/L	----	----	144	----	20
------	-----------	---	------	------	------	-----	------	----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VO_MW15_310314	VO_MW14_310314	VO_X_MW02_310314	VO_X_MW01_310314	VO_X_MW03_310314
				31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00
				ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	2	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	22.7	20.8	20.6	19.9	26.0
2-Chlorophenol-D4	93951-73-6	0.1	%	55.4	47.5	45.1	47.6	59.2
2,4,6-Tribromophenol	118-79-6	0.1	%	70.8	65.4	57.7	70.9	76.4
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	76.9	64.6	59.7	64.2	83.2
Anthracene-d10	1719-06-8	0.1	%	75.3	71.3	66.1	73.1	77.4
4-Terphenyl-d14	1718-51-0	0.1	%	64.2	68.9	62.6	71.5	68.2
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	104	105	96.6	107



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VO_MW15_310314	VO_MW14_310314	VO_X_MW02_310314	VO_X_MW01_310314	VO_X_MW03_310314
Client sampling date / time	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00	31-MAR-2014 15:00
Compound	ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1407202-001	ES1407202-002	ES1407202-003	ES1407202-004	ES1407202-005
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
Toluene-D8	2037-26-5	0.1	%	107	110	120	111	109
4-Bromofluorobenzene	460-00-4	0.1	%	101	107	112	97.5	104



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW17_310314	VO_MW19_310314	---	---	---
				31-MAR-2014 15:00	31-MAR-2014 15:00	---	---	---
				ES1407202-006	ES1407202-007	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.014	---	---	---	---
Boron	7440-42-8	0.05	mg/L	0.11	---	---	---	---
Barium	7440-39-3	0.001	mg/L	0.112	---	---	---	---
Beryllium	7440-41-7	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	---	---	---	---
Cobalt	7440-48-4	0.001	mg/L	0.001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	<0.001	---	---	---	---
Manganese	7439-96-5	0.001	mg/L	3.78	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	0.002	---	---	---	---
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
Selenium	7782-49-2	0.01	mg/L	<0.01	---	---	---	---
Vanadium	7440-62-2	0.01	mg/L	<0.01	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.021	---	---	---	---
Molybdenum	7439-98-7	0.001	mg/L	0.001	---	---	---	---
Thallium	7440-28-0	0.001	mg/L	<0.001	---	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Selenium	7782-49-2	2	µg/L	---	87	---	---	---
Arsenic	7440-38-2	0.5	µg/L	---	37.2	---	---	---
Barium	7440-39-3	1	µg/L	---	225	---	---	---
Beryllium	7440-41-7	0.1	µg/L	---	2.8	---	---	---
Boron	7440-42-8	100	µg/L	---	1160	---	---	---
Cadmium	7440-43-9	0.2	µg/L	---	0.5	---	---	---
Chromium	7440-47-3	0.5	µg/L	---	7.3	---	---	---
Cobalt	7440-48-4	0.2	µg/L	---	49.0	---	---	---
Copper	7440-50-8	1	µg/L	---	35	---	---	---
Lead	7439-92-1	0.2	µg/L	---	231	---	---	---
Manganese	7439-96-5	0.5	µg/L	---	469	---	---	---
Molybdenum	7439-98-7	0.1	µg/L	---	<0.1	---	---	---
Nickel	7440-02-0	0.5	µg/L	---	39.8	---	---	---
Thallium	7440-28-0	0.1	µg/L	---	0.5	---	---	---
Vanadium	7440-62-2	0.5	µg/L	---	0.7	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW17_310314	VO_MW19_310314	---	---	---
				31-MAR-2014 15:00	31-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1407202-006	ES1407202-007	---	---	---
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued</b>								
Zinc	7440-66-6	5	µg/L	---	64	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW17_310314	VO_MW19_310314	---	---	---
				31-MAR-2014 15:00	31-MAR-2014 15:00	---	---	---
Compound	CAS Number	LOR	Unit	ES1407202-006	ES1407202-007	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	8	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	8	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	29.0	26.8	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	63.8	57.4	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	76.0	59.6	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	85.5	73.2	----	----	----
Anthracene-d10	1719-06-8	0.1	%	75.0	59.7	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	68.6	64.4	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.7	106	----	----	----



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

<b>VO_MW17_310314</b>	<b>VO_MW19_310314</b>	----	----	----
31-MAR-2014 15:00	31-MAR-2014 15:00	----	----	----
<b>ES1407202-006</b>	<b>ES1407202-007</b>	----	----	----

Client sampling date / time

Compound	CAS Number	LOR	Unit					
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>								
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>110</b>	<b>110</b>	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>98.5</b>	<b>107</b>	----	----	----





## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407202</b>	<b>Page</b>	: 1 of 10
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 02-APR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 09-APR-2014
<b>Sampler</b>	: STEPHENIE BROOKES	<b>No. of samples received</b>	: 7
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 7
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

#### Signatories

Celine Conceicao  
Pabi Subba  
Shobhna Chandra

#### Position

Senior Spectroscopist  
Senior Organic Chemist  
Metals Coordinator

#### Accreditation Category

Sydney Inorganics  
Sydney Organics  
Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374832)</b>									
ES1407133-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.041	0.042	2.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.276	0.269	2.6	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.017	0.017	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
ES1407202-002	VO_MW14_310314	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.068	0.068	0.0	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.193	0.193	0.0	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.023	0.024	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374831)</b>									
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407199-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3377684)</b>									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3377684) - continued</b>										
ES1407202-003	VO_X_MW02_310314	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	3.2	3.2	0.0	0% - 20%	
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	0.2	<0.1	0.0	No Limit	
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	53.8	53.8	0.0	0% - 20%	
		EG093A-F: Lead	7439-92-1	0.2	µg/L	2.5	2.8	8.9	0% - 50%	
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	16.9	17.1	1.3	0% - 20%	
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit	
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	3540	3560	0.8	0% - 20%	
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	117	118	0.6	0% - 20%	
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	0.8	0.8	0.0	No Limit	
		EG093A-F: Barium	7440-39-3	1	µg/L	87	89	2.4	0% - 20%	
		EG093A-F: Copper	7440-50-8	1	µg/L	3	3	0.0	No Limit	
		EG093A-F: Boron	7440-42-8	100	µg/L	<100	<100	0.0	No Limit	
EG093A-F: Zinc	7440-66-6	5	µg/L	144	145	1.1	0% - 20%			
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3377685)</b>										
ES1407202-003	VO_X_MW02_310314	EG093B-F: Selenium	7782-49-2	2	µg/L	35	34	3.2	0% - 50%	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3377061)</b>										
ES1407201-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	VO_MW15_310314	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3377061)</b>										
ES1407201-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407202-001	VO_MW15_310314	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3377061)</b>										
ES1407201-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1407202-001	VO_MW15_310314	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	95.7	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	107	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	106	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	93.1	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.2	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	82.9	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.2	78	114	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3377684)</b>									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	88.3	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	89.3	70	122	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	104	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	89.4	69	117	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	78.9	73	121	
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	77.2	75	119	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	80.2	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	95.0	74	120	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	80.7	72	122	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	89.8	71	131	
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	82.0	72	124	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	91.7	72	122	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	91.2	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	76.3	70	126	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3377685)</b>								
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	90.3	74	130
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899)</b>								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.5	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.5	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	76.6	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	58.1	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.7	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.3	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	65.6	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.7	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.3	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	92.4	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	73.6	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.6	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	74.4	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.6	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.3	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	75.6	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.5	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.3	64.3	116
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899) - continued</b>									
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	67.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	69.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372898)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	103	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372898)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127	
<b>EP080: BTEXN (QCLot: 3377061)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.3	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120	





Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low
<b>EP080: BTEXN (QCLot: 3377061) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	107	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>							
ES1407133-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	89.9	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	82.1	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	88.8	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	88.9	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	80.9	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	86.0	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	83.9	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	82.6	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	73.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	84.2	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	82.0	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.4	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>							
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	70	130
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3377684)</b>							
ES1407060-004	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	95.4	70	130
		EG093A-F: Barium	7440-39-3	50 µg/L	74.3	70	130
		EG093A-F: Beryllium	7440-41-7	50 µg/L	81.9	70	130
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	79.0	70	130
		EG093A-F: Chromium	7440-47-3	50 µg/L	80.1	70	130
		EG093A-F: Cobalt	7440-48-4	50 µg/L	75.7	70	130
		EG093A-F: Copper	7440-50-8	50 µg/L	84.0	70	130
		EG093A-F: Lead	7439-92-1	50 µg/L	84.3	70	130
		EG093A-F: Manganese	7439-96-5	50 µg/L	87.0	70	130
		EG093A-F: Nickel	7440-02-0	50 µg/L	75.4	70	130
		EG093A-F: Vanadium	7440-62-2	50 µg/L	90.2	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3377684) - continued</b>								
ES1407060-004	Anonymous	EG093A-F: Zinc	7440-66-6	50 µg/L	79.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>								
ES1407201-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>								
ES1407201-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3377061)</b>								
ES1407201-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	72.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	97.3	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	109	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>										
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>										
ES1407133-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	89.9	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	82.1	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	88.8	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	88.9	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	80.9	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	86.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	83.9	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	82.6	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	73.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	84.2	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	82.0	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.4	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377061)</b>										
ES1407201-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	----	70	130	----	----

Page : 10 of 10  
 Work Order : ES1407202  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377061)</b>											
ES1407201-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3377061)</b>											
ES1407201-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	72.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	97.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	109	----	70	130	----	----	
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3377684)</b>											
ES1407060-004	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	95.4	----	70	130	----	----	
		EG093A-F: Barium	7440-39-3	50 µg/L	74.3	----	70	130	----	----	
		EG093A-F: Beryllium	7440-41-7	50 µg/L	81.9	----	70	130	----	----	
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	79.0	----	70	130	----	----	
		EG093A-F: Chromium	7440-47-3	50 µg/L	80.1	----	70	130	----	----	
		EG093A-F: Cobalt	7440-48-4	50 µg/L	75.7	----	70	130	----	----	
		EG093A-F: Copper	7440-50-8	50 µg/L	84.0	----	70	130	----	----	
		EG093A-F: Lead	7439-92-1	50 µg/L	84.3	----	70	130	----	----	
		EG093A-F: Manganese	7439-96-5	50 µg/L	87.0	----	70	130	----	----	
		EG093A-F: Nickel	7440-02-0	50 µg/L	75.4	----	70	130	----	----	
		EG093A-F: Vanadium	7440-62-2	50 µg/L	90.2	----	70	130	----	----	
		EG093A-F: Zinc	7440-66-6	50 µg/L	79.4	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407202</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: STEPHENIE BROOKES	No. of samples received	: 7
Order number	: 0237747	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VO_MW15_310314, VO_X_MW01_310314,	VO_MW14_310314, VO_MW17_310314	31-MAR-2014	---	27-SEP-2014	----	04-APR-2014	27-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) VO_X_MW02_310314, VO_MW19_310314	VO_X_MW03_310314,	31-MAR-2014	---	28-APR-2014	----	07-APR-2014	28-APR-2014	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VO_MW15_310314, VO_X_MW01_310314,	VO_MW14_310314, VO_MW17_310314	31-MAR-2014	---	28-APR-2014	----	07-APR-2014	28-APR-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F) VO_X_MW02_310314, VO_MW19_310314	VO_X_MW03_310314,	31-MAR-2014	---	27-SEP-2014	----	07-APR-2014	27-SEP-2014	✓
<b>EG093F: Dissolved Metals in Saline Water by ORC-ICPMS</b>								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093B-F) VO_X_MW02_310314, VO_MW19_310314	VO_X_MW03_310314,	31-MAR-2014	---	27-SEP-2014	----	07-APR-2014	27-SEP-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP071) VO_MW15_310314, VO_X_MW02_310314, VO_X_MW03_310314, VO_MW19_310314	VO_MW14_310314, VO_X_MW01_310314, VO_MW17_310314,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) VO_MW15_310314, VO_X_MW02_310314, VO_X_MW03_310314, VO_MW19_310314	VO_MW14_310314, VO_X_MW01_310314, VO_MW17_310314,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VO_MW15_310314, VO_X_MW02_310314, VO_X_MW03_310314, VO_MW19_310314	VO_MW14_310314, VO_X_MW01_310314, VO_MW17_310314,	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VO_MW15_310314, VO_X_MW02_310314, VO_X_MW03_310314, VO_MW19_310314	VO_MW14_310314, VO_X_MW01_310314, VO_MW17_310314,	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VO_MW15_310314, VO_X_MW02_310314, VO_X_MW03_310314, VO_MW19_310314	VO_MW14_310314, VO_X_MW01_310314, VO_MW17_310314,	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	3	33.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	20	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	20	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	20	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order</b> : <b>ES1407202</b>	
<b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory</b> : Environmental Division Sydney  <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800	<b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555
<b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Site</b> : ---- <b>Sampler</b> : STEPHENIE BROOKES	<b>Page</b> : 1 of 2  <b>Quote number</b> : ES2014ENVRES0385 (SY/050/14 V3)  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

#### Dates

<b>Date Samples Received</b> : 02-APR-2014 <b>Client Requested Due Date</b> : 09-APR-2014	<b>Issue Date</b> : 02-APR-2014 20:58 <b>Scheduled Reporting Date</b> : <b>09-APR-2014</b>
--	---

#### Delivery Details

<b>Mode of Delivery</b> : Carrier <b>No. of coolers/boxes</b> : 3 HARD <b>Security Seal</b> : Intact.	<b>Temperature</b> : 3.4°C - Ice present <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 7
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-24 TRH/BTEX/NPAH/Phenols
ES1407202-001	31-MAR-2014 15:00	VO_MW15_310314	✓				✓	✓
ES1407202-002	31-MAR-2014 15:00	VO_MW14_310314	✓				✓	✓
ES1407202-003	31-MAR-2014 15:00	VO_X_MW02_310314		✓	✓	✓		✓
ES1407202-004	31-MAR-2014 15:00	VO_X_MW01_310314	✓				✓	✓
ES1407202-005	31-MAR-2014 15:00	VO_X_MW03_310314		✓	✓	✓		✓
ES1407202-006	31-MAR-2014 15:00	VO_MW17_310314	✓				✓	✓
ES1407202-007	31-MAR-2014 15:00	VO_MW19_310314		✓	✓	✓		✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC)	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT	Email	symphony.deltacoast@erm.com
- EDI Format - XTab	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------

**CHAIN OF CUSTODY**  
**ALS Environmental**  
 ALS Laboratory:  
 please tick ->

LABEL/AGE 21 Burma Road, Rosvaka SA 5095  
 Ph: 08 8539 0590 E: rosakel@alsglobal.com  
 GIBBSRANE 32 Shire Street, Stafford QLD 4053  
 Ph: 07 3243 7222 E: samras.tankam@alsglobal.com  
 GILBERTS ONE 48 Chalmers Drive, Clifton QLD 4080  
 Ph: 07 3411 5500 E: gilbertsone@alsglobal.com

INDAKEY 78 Hiltner Road, Mackay QLD 4740  
 Ph: 07 4944 0177 E: mackey@alsglobal.com  
 DUNEBOURNE 2-4 Wessall Road, Springvale VIC 3171  
 Ph: 03 8540 9606 E: samir.kamal@alsglobal.com  
 DUNDIGEE 27 Spring Road, Kingoona NSW 2805  
 Ph: 02 8372 6735 E: mudgee@alsglobal.com

NEWCASTLE 8 Rose Gum Road, Warburton NSW 2304  
 Ph: 02 4989 9433 E: samir.kamal@alsglobal.com  
 DUNEDIN 4/15 Grey Place, North Nova Scotia 2541  
 Ph: 024423 2993 E: nova@alsglobal.com  
 PERTH 10 Wood Way, Malaga WA 6009  
 Ph: 08 9209 7655 E: samir.kamal@alsglobal.com

USYDNEY 277-289 Woodbine Road, Smithfield NSW 2164  
 Ph: 02 8784 8555 E: samir.kamal@alsglobal.com  
 DUNEDIN 14-15 Derna Court, Berke QLD 4818  
 Ph: 07 4786 0600 E: dunesville@alsglobal.com  
 WOLLONGONG 99 Kenny Street, Wollongong NSW 2500  
 Ph: 02 4225 3125 E: portlamb@alsglobal.com

CLIENT: ERM  
 OFFICE: PYRMONT  
 PROJECT: VALDES POINT POWER STATION  
 ORDER NUMBER: 0237747  
 SITE MANAGER: JOHN EWING  
 SAMPLER: *Stephen Brooker*  
 COC emailed to ALS? ( YES / NO )  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delacosa@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.delacosa@erm.com

TURNAROUND REQUIREMENTS:  Standard TAT (list due date);  Non Standard or urgent TAT (list due date);  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)  
 ALS QUOTE NO.:  
 CONTACT PH: 0401 776 290  
 CONTRACTOR MOBILE: *0450092836*  
 EDD FORMAT (or default):  
 RELINQUISHED BY: *Stephen*  
 DATE/TIME: *2/14/14 9:30*  
 RECEIVED BY: *Steven*  
 DATE/TIME: *2/14/14 9:30*

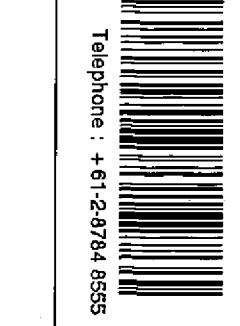
FOR LABORATORY USE ONLY (Grid)  
 YES NO N/A  
 CUSTOMER'S RECEIPT  
 RECEIVED BY: *Steven*  
 DATE/TIME: *2/14/14 9:30*

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	REFER TO	TOTAL CONTAINERS	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Additional Information
1	VD-MW15-310314	31.3.14	W			3+ 1+ 1	X	X	X								
2	VD-MW14-310314	31.3.14	W			3+ 1+ 1	X	X	X								
3	VD-X-MW02-310314	31.3.14	W			3+ 1+ 1	X	X	X								
4	VD-X-MW01-310314	31.3.14	W			3+ 1+ 1	X	X	X								
5	VD-X-MW03-310314	31.3.14	W			3+ 1+ 1	X	X	X								
6	VD-MW17-310314	31.3.14	W			3+ 1+ 1	X	X	X								
7	VD-MW19-310314	31.3.14	W			3+ 1+ 1	X	X	X								
						TOTAL											

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

Environmental Division  
 Sydney  
 Work Order  
**ES1407202**



Telephone : + 61 2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = V = VOA Vial Pkg Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl present; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407204</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : K.McLEAN <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 7  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 09-APR-2014  <b>No. of samples received</b> : 5 <b>No. of samples analysed</b> : 4
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VO_MW08	D01_310314_KM	VO_MW01	VM_MW04	----
				31-MAR-2014 12:40	31-MAR-2014 12:40	31-MAR-2014 14:04	31-MAR-2014 16:46	----
Compound	CAS Number	LOR	Unit	ES1407204-001	ES1407204-002	ES1407204-003	ES1407204-004	----
<b>ED037P: Alkalinity by PC Titrator</b>								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	200	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	200	----
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	30	----
<b>ED045G: Chloride Discrete analyser</b>								
Chloride	16887-00-6	1	mg/L	----	----	----	151	----
<b>ED093F: Dissolved Major Cations</b>								
Calcium	7440-70-2	1	mg/L	----	----	----	46	----
Magnesium	7439-95-4	1	mg/L	----	----	----	14	----
Sodium	7440-23-5	1	mg/L	----	----	----	133	----
Potassium	7440-09-7	1	mg/L	----	----	----	1	----
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.021	0.003	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	0.117	0.115	0.541	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.002	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.007	----	----
Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.001	0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	0.001	mg/L	0.458	0.462	2.27	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.003	----	----
Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.043	0.021	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	0.022	0.021	0.096	0.048	----
Boron	7440-42-8	0.05	mg/L	0.11	0.11	0.27	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EN055: Ionic Balance</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW08	D01_310314_KM	VO_MW01	VM_MW04	----
				31-MAR-2014 12:40	31-MAR-2014 12:40	31-MAR-2014 14:04	31-MAR-2014 16:46	----
Compound	CAS Number	LOR	Unit	ES1407204-001	ES1407204-002	ES1407204-003	ES1407204-004	----
<b>EN055: Ionic Balance - Continued</b>								
Total Anions	----	0.01	meq/L	----	----	----	8.88	----
Total Cations	----	0.01	meq/L	----	----	----	9.26	----
Ionic Balance	----	0.01	%	----	----	----	2.07	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VO_MW08	D01_310314_KM	VO_MW01	VM_MW04	----	
				31-MAR-2014 12:40	31-MAR-2014 12:40	31-MAR-2014 14:04	31-MAR-2014 16:46	----	
				ES1407204-001	ES1407204-002	ES1407204-003	ES1407204-004	----	
Compound	CAS Number	LOR	Unit						
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	560	----	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	560	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----	
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	110	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	480	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	590	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	110	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----	
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----	
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----	
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----	
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	----	
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----	
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	75.0	----	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.1	%	28.2	25.0	19.5	18.4	----	
2-Chlorophenol-D4	93951-73-6	0.1	%	63.2	56.6	37.0	38.7	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

VO_MW08	D01_310314_KM	VO_MW01	VM_MW04	----
31-MAR-2014 12:40	31-MAR-2014 12:40	31-MAR-2014 14:04	31-MAR-2014 16:46	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1407204-001	ES1407204-002	ES1407204-003	ES1407204-004	----
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2,4,6-Tribromophenol	118-79-6	0.1	%	71.7	56.0	64.7	87.5	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	83.3	71.9	56.0	65.7	----
Anthracene-d10	1719-06-8	0.1	%	79.9	67.0	61.4	71.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	77.4	67.0	67.8	79.0	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.7	86.8	82.8	84.4	----
Toluene-D8	2037-26-5	0.1	%	89.4	92.4	96.8	92.7	----
4-Bromofluorobenzene	460-00-4	0.1	%	87.2	86.0	87.3	86.9	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407204</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 02-APR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 09-APR-2014
<b>Sampler</b>	: K.McLEAN	<b>No. of samples received</b>	: 5
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 4
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 3373297)</b>									
ES1407225-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	143	142	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	143	142	0.0	0% - 20%
ES1407275-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	57	58	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	57	58	0.0	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3374000)</b>									
ES1407204-004	VM_MW04	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	30	30	0.0	0% - 20%
ES1407293-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	24	24	0.0	0% - 20%
<b>ED045G: Chloride Discrete analyser (QC Lot: 3373999)</b>									
ES1407204-004	VM_MW04	ED045G: Chloride	16887-00-6	1	mg/L	151	151	0.0	0% - 20%
ES1407293-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	228	228	0.0	0% - 20%
<b>ED093F: Dissolved Major Cations (QC Lot: 3373998)</b>									
ES1407063-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	8	8	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	4	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	225	227	0.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	11	0.0	0% - 50%
ES1407297-016	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	8	8	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	106	107	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374832)</b>									
ES1407133-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.041	0.042	2.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.276	0.269	2.6	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3374832) - continued</b>										
ES1407133-001	Anonymous	EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.017	0.017	0.0	No Limit	
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit	
ES1407202-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.068	0.068	0.0	0% - 20%	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.007	0.007	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.193	0.193	0.0	0% - 20%	
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit	
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.023	0.024	0.0	No Limit	
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit			
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374831)</b>										
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES1407199-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3374834)</b>										
ES1407204-003	VO_MW01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3377062)</b>										
EN1401113-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407268-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3377062)</b>										
EN1401113-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407268-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3377062)</b>										
EN1401113-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		

Page : 5 of 12  
 Work Order : ES1407204  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3377062) - continued</b>									
ES1407268-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED037P: Alkalinity by PC Titrator (QCLot: 3373297)</b>									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	89.8	81	111	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3374000)</b>									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	104	86	122	
<b>ED045G: Chloride Discrete analyser (QCLot: 3373999)</b>									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.2	77	123	
<b>ED093F: Dissolved Major Cations (QCLot: 3373998)</b>									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	108	90	114	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.8	90	110	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	107	82	118	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	108	87	117	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	95.7	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	107	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	106	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	93.1	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.2	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	82.9	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.2	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374834)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	91.5	78	114	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3372970)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	72.7	61.6	107	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372899)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	34.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	73.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	76.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	58.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	65.6	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	78.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	68.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	92.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	73.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	24.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372968)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	35.1	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	# 62.6	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	61.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	71.9	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	73.1	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	68.8	59.3	122	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3372968) - continued</b>									
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	71.0	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	66.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	67.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	68.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	18.8	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	74.4	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.3	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	75.6	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	69.5	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	69.3	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.3	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	68.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	68.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	67.2	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	69.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372899) - continued</b>									
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3372968)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	71.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	79.4	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	74.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.9	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	86.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	80.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	76.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	74.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	69.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	73.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	76.8	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	73.4	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	75.4	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	68.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372898)</b>									



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372898) - continued</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3372969)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	95.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.2	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377062)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.1	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372898)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3372969)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.5	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	91.5	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.4	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377062)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.5	75	127	
<b>EP080: BTEXN (QCLot: 3377062)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	118	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	110	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	118	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	116	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	114	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					MS	Low	High	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3374000)</b>								



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3374000) - continued</b>								
ES1407204-004	VM_MW04	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	71.3	70	130	
<b>ED045G: Chloride Discrete analyser (QCLot: 3373999)</b>								
ES1407204-004	VM_MW04	ED045G: Chloride	16887-00-6	250 mg/L	93.4	70	130	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>								
ES1407133-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	89.9	70	130	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	82.1	70	130	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	88.8	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	88.9	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	80.9	70	130	
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	86.0	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	83.9	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	82.6	70	130	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	73.6	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	84.2	70	130	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	82.0	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.4	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>								
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374834)</b>								
ES1407204-004	VM_MW04	EG035F: Mercury	7439-97-6	0.0100 mg/L	73.8	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377062)</b>								
EN1401113-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377062)</b>								
EN1401113-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	70	130	
<b>EP080: BTEXN (QCLot: 3377062)</b>								
EN1401113-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	104	70	130	
		EP080: Toluene	108-88-3	25 µg/L	104	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	121	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	109	70	130		

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>ED045G: Chloride Discrete analyser (QCLot: 3373999)</b>											
ES1407204-004	VM_MW04	ED045G: Chloride	16887-00-6	250 mg/L	93.4	----	70	130	----	----	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3374000)</b>											
ES1407204-004	VM_MW04	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	71.3	----	70	130	----	----	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374831)</b>											
EP1402396-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3374832)</b>											
ES1407133-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	89.9	----	70	130	----	----	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	82.1	----	70	130	----	----	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	88.8	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	88.9	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	80.9	----	70	130	----	----	
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	86.0	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	83.9	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	82.6	----	70	130	----	----	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	73.6	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	84.2	----	70	130	----	----	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	82.0	----	70	130	----	----	
EG020A-F: Zinc	7440-66-6	0.2 mg/L	88.4	----	70	130	----	----			
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3374834)</b>											
ES1407204-004	VM_MW04	EG035F: Mercury	7439-97-6	0.0100 mg/L	73.8	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3377062)</b>											
EN1401113-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3377062)</b>											
EN1401113-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3377062)</b>											
EN1401113-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	104	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	104	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	121	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	----	70	130	----	----	
EP080: Naphthalene	91-20-3	25 µg/L	109	----	70	130	----	----			

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407204</b>	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 09-APR-2014
Sampler	: K.McLEAN	No. of samples received	: 5
Order number	: 0237747	No. of samples analysed	: 4
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers





## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>ED037P: Alkalinity by PC Titrator</b>								
Clear Plastic Bottle - Natural (ED037-P) VM_MW04	31-MAR-2014	---	14-APR-2014	----	03-APR-2014	14-APR-2014	✓	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Clear Plastic Bottle - Natural (ED041G) VM_MW04	31-MAR-2014	---	28-APR-2014	----	03-APR-2014	28-APR-2014	✓	
<b>ED045G: Chloride Discrete analyser</b>								
Clear Plastic Bottle - Natural (ED045G) VM_MW04	31-MAR-2014	---	28-APR-2014	----	03-APR-2014	28-APR-2014	✓	
<b>ED093F: Dissolved Major Cations</b>								
Clear Plastic Bottle - Natural (ED093F) VM_MW04	31-MAR-2014	---	07-APR-2014	----	03-APR-2014	07-APR-2014	✓	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VO_MW08, VO_MW01,	D01_310314_KM, VM_MW04	31-MAR-2014	---	27-SEP-2014	----	04-APR-2014	27-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VO_MW08, VO_MW01,	D01_310314_KM, VM_MW04	31-MAR-2014	---	28-APR-2014	----	07-APR-2014	28-APR-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Amber Glass Bottle - Unpreserved (EP066) VM_MW04	31-MAR-2014	07-APR-2014	07-APR-2014	✓	08-APR-2014	17-MAY-2014	✓	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP071) VO_MW08,	D01_310314_KM	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
Amber Glass Bottle - Unpreserved (EP071) VO_MW01,	VM_MW04	31-MAR-2014	07-APR-2014	07-APR-2014	✓	08-APR-2014	17-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) VO_MW08,	D01_310314_KM	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) VO_MW01,	VM_MW04	31-MAR-2014	07-APR-2014	07-APR-2014	✓	08-APR-2014	17-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VO_MW08,	D01_310314_KM	31-MAR-2014	05-APR-2014	07-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VO_MW01,	VM_MW04	31-MAR-2014	07-APR-2014	07-APR-2014	✓	08-APR-2014	17-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW08, VO_MW01,	D01_310314_KM, VM_MW04	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VO_MW08, VO_MW01,	D01_310314_KM, VM_MW04	31-MAR-2014	07-APR-2014	14-APR-2014	✓	07-APR-2014	14-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	23	13.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	30	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	23	8.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	30	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	23	8.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	32	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	30	6.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	23	8.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	32	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Matrix Spikes (MS) - Continued</b>							
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	30	0.0	5.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO <sub>4</sub> <sup>2-</sup> by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO <sub>4</sub> Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO <sub>4</sub> suspension is measured by a photometer and the SO <sub>4</sub> <sup>2-</sup> concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)  Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3)  Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO <sub>4</sub> DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO <sub>4</sub> by DA. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)A: Phenolic Compounds	4030149-002	----	2-Chlorophenol	95-57-8	62.6 %	63.8-110%	Recovery less than lower control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	6	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	30	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	32	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	0	6	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	30	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

<b>Work Order : ES1407204</b>	
<b>Client : ENVIRO RESOURCES MANAGEMENT</b> <b>Contact : JOHN EWING</b> <b>Address : GROUND FLOOR</b> 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Laboratory : Environmental Division Sydney</b>  <b>Contact : Barbara Hanna</b> <b>Address : 277-289 Woodpark Road Smithfield</b> NSW Australia 2164
<b>E-mail : john.ewing@erm.com</b> <b>Telephone : +61 02 8584 8888</b> <b>Facsimile : +61 02 8584 8800</b>	<b>E-mail : Barbara.Hanna@alsglobal.com</b> <b>Telephone : +61 2 8784 8555</b> <b>Facsimile : +61 2 8784 8555</b>
<b>Project : VALES POINT POWER STATION</b> <b>Order number : 0237747</b> <b>C-O-C number : ----</b> <b>Site : ----</b> <b>Sampler : K.McLEAN</b>	<b>Page : 1 of 3</b>  <b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b>  <b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>

#### Dates

<b>Date Samples Received : 02-APR-2014</b> <b>Client Requested Due Date : 09-APR-2014</b>	<b>Issue Date : 02-APR-2014 20:32</b> <b>Scheduled Reporting Date : 09-APR-2014</b>
--	--

#### Delivery Details

<b>Mode of Delivery : Carrier</b> <b>No. of coolers/boxes : 3 HARD</b> <b>Security Seal : Intact.</b>	<b>Temperature : 3.4°C - Ice present</b> <b>No. of samples received : 5</b> <b>No. of samples analysed : 4</b>
---	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER	No analysis requested	WATER - EG020F	Dissolved Metals by ICPMS	WATER - EN055 - PG	Ionic Balance by ED037P, ED041G.	WATER - EP066-PCB-WA	Polychlorinated Biphenyls (PCB)	WATER - NT-01	Major Cations (Ca, Mg, Na, K)	WATER - NT-02	Major Anions (Chloride, Sulphate)	WATER - W-03	15 Metals (NEPM Suite)	WATER - W-24	TRH/BTEXN/PAH/Phenols
ES1407204-001	31-MAR-2014 12:40	VO_MW08		✓											✓			✓
ES1407204-002	31-MAR-2014 12:40	D01_310314_KM		✓											✓			✓
ES1407204-003	31-MAR-2014 14:04	VO_MW01		✓											✓			✓
ES1407204-004	31-MAR-2014 16:46	VM_MW04				✓	✓	✓	✓									
ES1407204-005	31-MAR-2014 16:46	VB_MW03	✓															

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1407204-004	31-MAR-2014 16:46	VM_MW04	✓

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### SYMPHONY DELTANORTH

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltanorth@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltanorth@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltanorth@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltanorth@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltanorth@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltanorth@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltanorth@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltanorth@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltanorth@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltanorth@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407299</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : KM <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 11-APR-2014  <b>No. of samples received</b> : 7 <b>No. of samples analysed</b> : 7
---	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VL_MW02	VL_MW01	VU_MW03	VH_X_MW06	VU_MW08
				01-APR-2014 12:07	01-APR-2014 13:14	01-APR-2014 14:51	01-APR-2014 16:04	01-APR-2014 17:11
				ES1407299-001	ES1407299-002	ES1407299-003	ES1407299-004	ES1407299-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0002	0.0004	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.010	0.023	0.021	0.064	0.002
Lead	7439-92-1	0.001	mg/L	0.012	0.031	0.020	0.020	<0.001
Nickel	7440-02-0	0.001	mg/L	0.006	0.008	0.039	0.030	0.008
Zinc	7440-66-6	0.005	mg/L	0.037	0.063	0.120	0.095	0.027
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VL_MW02	VL_MW01	VU_MW03	VH_X_MW06	VU_MW08
				01-APR-2014 12:07	01-APR-2014 13:14	01-APR-2014 14:51	01-APR-2014 16:04	01-APR-2014 17:11
Compound	CAS Number	LOR	Unit	ES1407299-001	ES1407299-002	ES1407299-003	ES1407299-004	ES1407299-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	5	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	5	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

### EP231: Perfluorinated Compounds



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VL_MW02	VL_MW01	VU_MW03	VH_X_MW06	VU_MW08
				01-APR-2014 12:07	01-APR-2014 13:14	01-APR-2014 14:51	01-APR-2014 16:04	01-APR-2014 17:11
Compound	CAS Number	LOR	Unit	ES1407299-001	ES1407299-002	ES1407299-003	ES1407299-004	ES1407299-005
<b>EP231: Perfluorinated Compounds - Continued</b>								
PFOS	1763-23-1	0.02	µg/L	0.17	<0.02	----	----	----
PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	32.8	41.0	35.0	23.5	25.0
2-Chlorophenol-D4	93951-73-6	0.1	%	62.5	38.0	66.2	46.1	24.0
2,4,6-Tribromophenol	118-79-6	0.1	%	67.5	61.0	60.8	41.6	65.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	66.0	76.0	69.9	45.7	45.0
Anthracene-d10	1719-06-8	0.1	%	76.6	100	81.0	45.2	77.0
4-Terphenyl-d14	1718-51-0	0.1	%	88.1	90.0	94.5	68.1	72.0
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.0	103	99.8	104	102
Toluene-D8	2037-26-5	0.1	%	110	110	112	113	116
4-Bromofluorobenzene	460-00-4	0.1	%	97.1	94.5	95.6	93.7	97.8





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	D01_010414_KM	VL_MW03	---	---	---
Client sampling date / time	01-APR-2014 14:51	01-APR-2014 15:00	---	---	---
	ES1407299-006	ES1407299-007	---	---	---

Compound	CAS Number	LOR	Unit	ES1407299-006	ES1407299-007	---	---	---
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	---	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	0.0001	---	---	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	---	---	---	---
Copper	7440-50-8	0.001	mg/L	0.020	---	---	---	---
Lead	7439-92-1	0.001	mg/L	0.020	---	---	---	---
Nickel	7440-02-0	0.001	mg/L	0.040	---	---	---	---
Zinc	7440-66-6	0.005	mg/L	0.113	---	---	---	---
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	---	<0.001	---	---	---
Cadmium	7440-43-9	0.0001	mg/L	---	<0.0001	---	---	---
Chromium	7440-47-3	0.001	mg/L	---	0.002	---	---	---
Copper	7440-50-8	0.001	mg/L	---	0.031	---	---	---
Lead	7439-92-1	0.001	mg/L	---	0.002	---	---	---
Nickel	7440-02-0	0.001	mg/L	---	0.005	---	---	---
Zinc	7440-66-6	0.005	mg/L	---	0.039	---	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	---	<0.0001	---	---	---
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	D01_010414_KM	VL_MW03	---	---	---
Client sampling date / time	01-APR-2014 14:51	01-APR-2014 15:00	---	---	---
	ES1407299-006	ES1407299-007	---	---	---

Compound	CAS Number	LOR	Unit	ES1407299-006	ES1407299-007	---	---	---
----------	------------	-----	------	---------------	---------------	-----	-----	-----

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued

Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	---	---	---

### EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	---	---	---
C10 - C14 Fraction	----	50	µg/L	<50	<50	---	---	---
C15 - C28 Fraction	----	100	µg/L	<100	<100	---	---	---
C29 - C36 Fraction	----	50	µg/L	<50	<50	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---

### EP080/071: Total Recoverable Hydrocarbons - NEPM 2013

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	---	---	---
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	---	---	---
>C16 - C34 Fraction	----	100	µg/L	<100	<100	---	---	---
>C34 - C40 Fraction	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	---	---	---
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	---	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				D01_010414_KM	VL_MW03	---	---	---
				01-APR-2014 14:51	01-APR-2014 15:00	---	---	---
				ES1407299-006	ES1407299-007	---	---	---
Compound	CAS Number	LOR	Unit					
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	---	---	---
Toluene	108-88-3	2	µg/L	<2	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	---	---	---
^ Sum of BTEX	----	1	µg/L	<1	<1	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	---	---	---
<b>EP231: Perfluorinated Compounds</b>								
PFOS	1763-23-1	0.02	µg/L	----	<0.02	---	---	---
PFOA	335-67-1	0.02	µg/L	----	<0.02	---	---	---
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	<0.1	---	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>38.7</b>	<b>19.8</b>	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	<b>73.1</b>	<b>37.8</b>	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	<b>69.3</b>	<b>37.4</b>	---	---	---
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	<b>72.3</b>	<b>38.7</b>	---	---	---
Anthracene-d10	1719-06-8	0.1	%	<b>88.3</b>	<b>46.6</b>	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	<b>102</b>	<b>53.4</b>	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	<b>105</b>	<b>113</b>	---	---	---
Toluene-D8	2037-26-5	0.1	%	<b>86.0</b>	<b>101</b>	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	<b>105</b>	<b>96.4</b>	---	---	---



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1407299</b>	Page	: 1 of 12
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 02-APR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 11-APR-2014
<b>Sampler</b>	: KM	<b>No. of samples received</b>	: 7
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 7
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3379757)</b>									
ES1407280-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
ES1407310-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3379760)</b>									
ES1407280-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.008	<0.001	152	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1407376-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.005	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3379758)</b>									
ES1407299-001	VL_MW02	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407376-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3378640)</b>									
EN1401049-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407328-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3378944)</b>										
ES1407294-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1407297-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3378992)</b>										
ES1407301-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	70	70	0.0	No Limit	
ES1407301-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	80	90	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3378944)</b>										
ES1407294-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1407297-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3378992)</b>										
ES1407301-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	80	90	0.0	No Limit	
ES1407301-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	100	110	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3378944)</b>										
ES1407294-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1407297-010	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
<b>EP080: BTEXN (QC Lot: 3378992)</b>										
ES1407301-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1407301-009	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			



Page : 5 of 12  
 Work Order : ES1407299  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3378992) - continued</b>									
ES1407301-009	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
<b>EP231: Perfluorinated Compounds (QC Lot: 3375643)</b>									
EM1403051-002	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES1407295-003	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3379757)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.3	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.7	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3379760)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.1	84	116	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	84	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.9	77	117	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3379758)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	93.5	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378640)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.5	77	115	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3375303)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	50.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	82.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	81.4	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	79.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	69.3	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	65.6	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	62.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3375303) - continued</b>								
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.1	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.2	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	71.2	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	75.6	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3375303)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.3	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	83.3	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	# 61.7	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.2	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	71.8	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	70.9	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.5	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.8	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	70.6	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	71.0	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	71.5	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	80.0	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	67.8	59.9	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3375303) - continued</b>								
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	74.9	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	74.7	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375302)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.6	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.6	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378944)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	95.2	75	127
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.6	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375302)</b>								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	98.9	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	97.8	67	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378944)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	96.0	75	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	93.8	75	127
<b>EP080: BTEXN (QCLot: 3378944)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.8	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	101	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.0	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	93.2	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.9	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	70	124
<b>EP080: BTEXN (QCLot: 3378992)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	111	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	121	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	113	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	70	124



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP231: Perfluorinated Compounds (QCLot: 3375643)</b>									
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	113	70	136	
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	85.2	72	134	
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	89.1	61	145	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
				Low	High		
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3379757)</b>							
ES1407280-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	102	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	94.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	101	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	103	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3379760)</b>							
ES1407299-007	VL_MW03	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.3	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	105	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.0	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	101	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3379758)</b>							
ES1407299-002	VL_MW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	77.8	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378640)</b>							
ES1407277-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.0	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378944)</b>							
ES1407294-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	123	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>							
ES1407301-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378944)</b>							
ES1407294-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	122	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>							
ES1407301-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70	130
<b>EP080: BTEXN (QCLot: 3378944)</b>							
ES1407294-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	70	130
		EP080: Toluene	108-88-3	25 µg/L	100	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70	130
<b>EP080: BTEXN (QCLot: 3378992)</b>							
ES1407301-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	106	70	130
		EP080: Toluene	108-88-3	25 µg/L	122	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	122	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	117	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	120	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	118	70	130
<b>EP231: Perfluorinated Compounds (QCLot: 3375643)</b>							
EM1403051-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	97.2	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	93.8	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	116	61	145

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EP231: Perfluorinated Compounds (QCLot: 3375643)</b>										
EM1403051-002	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	97.2	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	93.8	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	116	----	61	145	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3378640)</b>										
ES1407277-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.0	----	70	130	----	----
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378944)</b>										
ES1407294-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	123	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378944)</b>											
ES1407294-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	122	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3378944)</b>											
ES1407294-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	100	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>											
ES1407301-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>											
ES1407301-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3378992)</b>											
ES1407301-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	106	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	122	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	122	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	117	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	120	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	118	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3379757)</b>											
ES1407280-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	102	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	102	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	94.6	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	101	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	103	----	70	130	----	----	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3379758)</b>											
ES1407299-002	VL_MW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	77.8	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3379760)</b>											
ES1407299-007	VL_MW03	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	99.3	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	105	----	70	130	----	----	
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.0	----	70	130	----	----	

Page : 12 of 12  
 Work Order : ES1407299  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3379760) - continued</b>										
ES1407299-007	VL_MW03	EG020A-T: Zinc	7440-66-6	1 mg/L	101	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407299</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 11-APR-2014
Sampler	: KM	No. of samples received	: 7
Order number	: 0237747	No. of samples analysed	: 7
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VL_MW02, VU_MW03, VU_MW08, VL_MW01, VH_X_MW06, D01_010414_KM	01-APR-2014	---	28-SEP-2014	----	08-APR-2014	28-SEP-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b> VL_MW03	01-APR-2014	08-APR-2014	28-SEP-2014	✓	08-APR-2014	28-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VL_MW02, VU_MW03, VU_MW08, VL_MW01, VH_X_MW06, D01_010414_KM	01-APR-2014	---	29-APR-2014	----	08-APR-2014	29-APR-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b> VL_MW03	01-APR-2014	----	----	----	08-APR-2014	29-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VL_MW02, VU_MW03, VU_MW08, VL_MW03, VL_MW01, VH_X_MW06, D01_010414_KM,	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>							
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VL_MW02, VU_MW03, VU_MW08, VL_MW03, VL_MW01, VH_X_MW06, D01_010414_KM,	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VL_MW02, VU_MW03, VU_MW08, VL_MW03	VL_MW01, VH_X_MW06, D01_010414_KM,	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> D01_010414_KM,	VL_MW03	01-APR-2014	08-APR-2014	15-APR-2014	✓	08-APR-2014	15-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VL_MW02, VU_MW03, VU_MW08	VL_MW01, VH_X_MW06,	01-APR-2014	10-APR-2014	15-APR-2014	✓	10-APR-2014	15-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> D01_010414_KM,	VL_MW03	01-APR-2014	08-APR-2014	15-APR-2014	✓	08-APR-2014	15-APR-2014	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VL_MW02, VU_MW03, VU_MW08	VL_MW01, VH_X_MW06,	01-APR-2014	10-APR-2014	15-APR-2014	✓	10-APR-2014	15-APR-2014	✓
<b>EP231: Perfluorinated Compounds</b>								
<b>HDPE (no PTFE) (EP231)</b> VL_MW02, VL_MW03	VL_MW01,	01-APR-2014	---	28-SEP-2014	----	04-APR-2014	28-SEP-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	17	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	17	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	4032910-007	----	<b>Acenaphthene</b>	83-32-9	61.7 %	62.2-113%	<b>Recovery less than lower control limit</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	17	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	17	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	17	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	17	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1407299**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : KM</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 02-APR-2014</b></p> <p><b>Client Requested Due Date : 10-APR-2014</b></p>	<p><b>Issue Date : 04-APR-2014 09:48</b></p> <p><b>Scheduled Reporting Date : <b>10-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 1 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.9° C - Ice present</b></p> <p><b>No. of samples received : 7</b></p> <p><b>No. of samples analysed : 7</b></p>
--	--

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01\_010414\_KM will be forwarded to Envirolab as per COC.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	WATER - W-27 TRH/BTEX/NP/PAH/Phenols/8 Metals	WATER - W-27T TRH/BTEX/NP/PAH/Phenols/Total 8 Metals
ES1407299-001	01-APR-2014 12:07	VL_MW02	✓	✓	
ES1407299-002	01-APR-2014 13:14	VL_MW01	✓	✓	
ES1407299-003	01-APR-2014 14:51	VU_MW03		✓	
ES1407299-004	01-APR-2014 16:04	VH_X_MW06		✓	
ES1407299-005	01-APR-2014 17:11	VU_MW08		✓	
ES1407299-006	01-APR-2014 14:51	D01_010414_KM		✓	
ES1407299-007	01-APR-2014 15:00	VL_MW03	✓		✓

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- \*AU Certificate of Analysis - NATA
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep)
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA
- A4 - AU Sample Receipt Notification - Environmental HT
- A4 - AU Tax Invoice ( INV )
- Chain of Custody (CoC)
- EDI Format - ENMRG
- EDI Format - EQUIS V5 ERM
- EDI Format - ESDAT
- EDI Format - XTab

Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com
Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )

Email	au.accounts@erm.com
-------	---------------------



**CHAIN OF CUSTODY**  
ALS Laboratory:  
please tick →

**DADELIDE** 21 Burma Road Bourke SA 5095  
Ph: 08 8359 0560 E: sales@alsglobal.com

**CHILBOURN** 24 Westall Road Springvale VIC 3171  
Ph: 03 9510 8500 E: samples.melbourne@alsglobal.com

**CHIDDEE** 27 Sydney Road Mudgee NSW 2850  
Ph: 02 6572 6735 E: mudgee.mt@alsglobal.com

**DMACKAY** 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com

**DNOWRA** 4703 Geary Place North Nowra NSW 2541  
Ph: 02 4423 2863 E: nowra@alsglobal.com

**DPERTH** 10 Wood Way Malaga WA 6060  
Ph: 08 9209 7055 E: surfmakes.perth@alsglobal.com

**DSYDNEY** 277-289 Woodpark Road Springfield NSW 2184  
Ph: 02 8764 6555 E: sydney@alsglobal.com

**DTOWNSVILLE** 14-16 Dussora Court Brisbane QLD 4818  
Ph: 07 4788 0800 E: townsville@alsglobal.com

**ENVIRONMENTAL** 69 Kenton Street Melbourne VIC 3120  
Ph: 02 4225 3125 E: perth@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** K. MCCLEAN  
**COC emailed to ALS?** ( YES / NO )  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**FOR LABORATORY USE ONLY (Circle):**  
Category: Seal Intact? ( )  
Freeze? ( )  
Random Sample Temperature on Receipt? ( )  
Other container? ( )

**RECEIVED BY:** K. McClean  
**DATE/TIME:** 02/14/14 1900

**RELINQUISHED BY:**  
**DATE/TIME:**

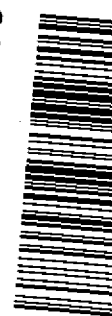
**RECEIVED BY:**  
**DATE/TIME:**

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).													Additional Information
						8 METALS (W-2)	13 METALS (W-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Al, SO4, Cl)	PFOS/PFOA	Ultra Trace PAH	Ultra Trace Metals	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.			
1	VL-MW02	11/4/14	W		5	X	X	X	X	X	X	X	X	X	X	X			
2	VL-MW01	12:07	W		5	X	X	X	X	X	X	X	X	X	X	X			
3	VL-MW03	13:14	W		4	X	X	X	X	X	X	X	X	X	X	X			
4	VH-X-MW06	14:51	W		5	X	X	X	X	X	X	X	X	X	X	X			
5	VH-MW08	16:04	W		4	X	X	X	X	X	X	X	X	X	X	X			
6	001-010414-KM	17:11	W		4	X	X	X	X	X	X	X	X	X	X	X			
7	T01-010414-KM	14:51	W		4	X	X	X	X	X	X	X	X	X	X	X			
8	VL-MW03	14:51	W		5	X	X	X	X	X	X	X	X	X	X	X			
<b>TOTAL</b>																			

*Ultratrace metals to be put on hold pending results of metals (8). Please for T01-010414-KM to EnviroLab.*

Environmental Division  
Sydney  
Work Order  
**ES1407299**



Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Ster

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407300</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : SYMPHONY DELTACOAST <b>Address</b> : GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009  <b>E-mail</b> : symphony.deltacoast@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : S.BROOKES <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 10  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 10-APR-2014  <b>No. of samples received</b> : 11 <b>No. of samples analysed</b> : 11
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080:Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VU_MW05_010414	VU_MW04_010414	D01_010414_SB	VU_MW06_010414	VU_MW01_010414
				01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00
				ES1407300-001	ES1407300-002	ES1407300-003	ES1407300-005	ES1407300-006
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<b>0.002</b>
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<b>0.004</b>	<b>0.004</b>	<b>0.002</b>	<b>0.003</b>	<b>0.002</b>
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<b>0.004</b>	<b>0.003</b>	<b>0.003</b>	<b>0.002</b>	<b>0.003</b>
Zinc	7440-66-6	0.005	mg/L	<b>0.029</b>	<b>0.029</b>	<b>0.024</b>	<b>0.023</b>	<b>0.030</b>
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VU_MW05_010414	VU_MW04_010414	D01_010414_SB	VU_MW06_010414	VU_MW01_010414
				01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1407300-001	ES1407300-002	ES1407300-003	ES1407300-005	ES1407300-006
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VU_MW05_010414	VU_MW04_010414	D01_010414_SB	VU_MW06_010414	VU_MW01_010414
				01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00
Compound	CAS Number	LOR	Unit	ES1407300-001	ES1407300-002	ES1407300-003	ES1407300-005	ES1407300-006
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	20.4	21.6	20.8	24.8	18.3
2-Chlorophenol-D4	93951-73-6	0.1	%	48.1	50.2	49.2	57.6	42.2
2,4,6-Tribromophenol	118-79-6	0.1	%	54.1	57.2	54.1	65.3	56.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	56.3	63.3	55.8	64.8	45.1
Anthracene-d10	1719-06-8	0.1	%	60.1	51.0	59.7	58.6	46.7
4-Terphenyl-d14	1718-51-0	0.1	%	60.0	61.8	58.8	72.2	58.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	77.2	88.5	83.6	87.0	84.1
Toluene-D8	2037-26-5	0.1	%	91.5	95.4	101	100	94.9
4-Bromofluorobenzene	460-00-4	0.1	%	80.7	89.4	80.9	89.2	86.6



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VU_MW02_010414	VU_MW07_010414	VU_MW17_010414	VU_MW16_010414	TB3
				01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	[01-APR-2014]
Compound	CAS Number	LOR	Unit	ES1407300-007	ES1407300-008	ES1407300-009	ES1407300-010	ES1407300-011
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0004</b>	<0.0001	<b>0.0001</b>	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	<b>0.005</b>	<b>0.004</b>	<b>0.004</b>	<b>0.004</b>	----
Lead	7439-92-1	0.001	mg/L	<b>0.002</b>	<0.001	<0.001	<b>0.005</b>	----
Nickel	7440-02-0	0.001	mg/L	<b>0.025</b>	<b>0.008</b>	<b>0.004</b>	<b>0.002</b>	----
Zinc	7440-66-6	0.005	mg/L	<b>0.121</b>	<b>0.020</b>	<b>0.036</b>	<b>0.026</b>	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VU_MW02_010414	VU_MW07_010414	VU_MW17_010414	VU_MW16_010414	TB3
				01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	[01-APR-2014]
Compound	CAS Number	LOR	Unit	ES1407300-007	ES1407300-008	ES1407300-009	ES1407300-010	ES1407300-011
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

### EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VU_MW02_010414	VU_MW07_010414	VU_MW17_010414	VU_MW16_010414	TB3
Client sampling date / time	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	01-APR-2014 15:00	[01-APR-2014]
	ES1407300-007	ES1407300-008	ES1407300-009	ES1407300-010	ES1407300-011

Compound	CAS Number	LOR	Unit	ES1407300-007	ES1407300-008	ES1407300-009	ES1407300-010	ES1407300-011
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	21.1	20.5	20.4	20.9	----
2-Chlorophenol-D4	93951-73-6	0.1	%	49.0	48.7	49.2	49.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	59.7	52.6	53.7	52.0	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	51.3	45.8	43.8	47.3	----
Anthracene-d10	1719-06-8	0.1	%	51.7	61.2	49.9	50.6	----
4-Terphenyl-d14	1718-51-0	0.1	%	63.6	61.7	61.6	63.4	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.3	84.9	88.9	89.3	86.0
Toluene-D8	2037-26-5	0.1	%	95.3	95.7	93.5	100	91.8
4-Bromofluorobenzene	460-00-4	0.1	%	87.4	87.2	87.8	85.6	87.0



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

<b>TS3</b>	----	----	----	----
------------	------	------	------	------

Client sampling date / time

[01-APR-2014]	----	----	----	----
---------------	------	------	------	------

Compound	CAS Number	LOR	Unit	<b>ES1407300-012</b>	----	----	----	----
----------	------------	-----	------	----------------------	------	------	------	------

### EP080: BTEXN

<b>Benzene</b>	71-43-2	1	µg/L	<b>16</b>	----	----	----	----
<b>Toluene</b>	108-88-3	2	µg/L	<b>15</b>	----	----	----	----
<b>Ethylbenzene</b>	100-41-4	2	µg/L	<b>17</b>	----	----	----	----
<b>meta- &amp; para-Xylene</b>	108-38-3 106-42-3	2	µg/L	<b>16</b>	----	----	----	----
<b>ortho-Xylene</b>	95-47-6	2	µg/L	<b>16</b>	----	----	----	----
<b>Total Xylenes</b>	1330-20-7	2	µg/L	<b>32</b>	----	----	----	----
<b>Sum of BTEX</b>	----	1	µg/L	<b>80</b>	----	----	----	----
<b>Naphthalene</b>	91-20-3	5	µg/L	<b>17</b>	----	----	----	----

### EP080S: TPH(V)/BTEX Surrogates

<b>1,2-Dichloroethane-D4</b>	17060-07-0	0.1	%	<b>85.4</b>	----	----	----	----
<b>Toluene-D8</b>	2037-26-5	0.1	%	<b>100</b>	----	----	----	----
<b>4-Bromofluorobenzene</b>	460-00-4	0.1	%	<b>85.4</b>	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407300</b>	<b>Page</b>	<b>: 1 of 9</b>
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: SYMPHONY DELTACOAST</b>	<b>Contact</b>	<b>: Barbara Hanna</b>
<b>Address</b>	<b>: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>E-mail</b>	<b>: symphony.deltacoast@erm.com</b>	<b>E-mail</b>	<b>: Barbara.Hanna@alsglobal.com</b>
<b>Telephone</b>	<b>: +61 02 8584 8888</b>	<b>Telephone</b>	<b>: +61 2 8784 8555</b>
<b>Facsimile</b>	<b>: +61 02 8584 8800</b>	<b>Facsimile</b>	<b>: +61 2 8784 8555</b>
<b>Project</b>	<b>: VALES POINT POWER STATION</b>	<b>QC Level</b>	<b>: NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 02-APR-2014</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 10-APR-2014</b>
<b>Sampler</b>	<b>: S.BROOKES</b>	<b>No. of samples received</b>	<b>: 11</b>
<b>Order number</b>	<b>: 0237747</b>	<b>No. of samples analysed</b>	<b>: 11</b>
<b>Quote number</b>	<b>: SY/050/14 V3</b>		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :

- Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
- CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
- LOR = Limit of reporting
- RPD = Relative Percentage Difference
- # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3378576)</b>									
ES1407297-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.041	0.040	0.0	No Limit
ES1407297-014	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0006	0.0006	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.042	0.038	8.4	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.035	0.037	5.9	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.147	0.156	5.4	0% - 20%
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3378579)</b>									
ES1407300-009	VU_MW17_010414	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.036	0.039	8.9	No Limit
ES1407303-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.014	0.013	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3378575)</b>									
ES1407297-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407297-013	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3378578)</b>									
ES1407300-007	VU_MW02_010414	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1407303-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3378994)</b>									
ES1407300-001	VU_MW05_010414	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1407300-009	VU_MW17_010414	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3378994)</b>									
ES1407300-001	VU_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1407300-009	VU_MW17_010414	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3378994)</b>									
ES1407300-001	VU_MW05_010414	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1407300-009	VU_MW17_010414	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378576)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.2	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.3	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.0	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.2	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.9	80	116	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378579)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.7	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.4	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.4	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.8	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.0	80	116	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378575)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	96.2	78	114	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378578)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	92.0	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3373200)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	39.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	69.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	66.4	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	60.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	77.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	83.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	67.4	59.3	122	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3373200) - continued</b>								
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.0	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	73.4	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.2	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	68.9	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	50.4	10	95
		2	µg/L	<2.0	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3373200)</b>								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	68.2	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.0	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	69.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	69.9	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	73.4	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	72.5	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	75.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	75.2	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	71.8	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	75.1	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	76.6	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	87.1	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	73.8	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.9	59.9	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3373200) - continued</b>									
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	71.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	71.5	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3373199)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.2	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.5	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378994)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.5	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3373199)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	96.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.3	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378994)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.7	75	127	
<b>EP080: BTEXN (QCLot: 3378994)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	112	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	103	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	113	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	111	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70	124	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378576)</b>								
ES1407297-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	99.7	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	101	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.5	70	130	



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378576) - continued</b>								
ES1407297-004	Anonymous	EG020A-F: Copper	7440-50-8	0.2 mg/L	94.3	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	90.5	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.3	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	96.8	70	130	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378579)</b>								
ES1407300-010	VU_MW16_010414	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	110	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	108	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	106	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	100	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	106	70	130	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	110	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378575)</b>								
ES1407297-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	70	130	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378578)</b>								
ES1407300-008	VU_MW07_010414	EG035F: Mercury	7439-97-6	0.0100 mg/L	77.4	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378994)</b>								
ES1407300-001	VU_MW05_010414	EP080: C6 - C9 Fraction	----	325 µg/L	121	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378994)</b>								
ES1407300-001	VU_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130	
<b>EP080: BTEXN (QCLot: 3378994)</b>								
ES1407300-001	VU_MW05_010414	EP080: Benzene	71-43-2	25 µg/L	110	70	130	
		EP080: Toluene	108-88-3	25 µg/L	100	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70	130	
		EP080: Naphthalene	91-20-3	25 µg/L	88.1	70	130	

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378575)</b>										



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378575) - continued</b>											
ES1407297-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	74.1	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378576)</b>											
ES1407297-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	99.7	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	101	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.5	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	94.3	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	90.5	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.3	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	96.8	----	70	130	----	----	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3378578)</b>											
ES1407300-008	VU_MW07_010414	EG035F: Mercury	7439-97-6	0.0100 mg/L	77.4	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3378579)</b>											
ES1407300-010	VU_MW16_010414	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	110	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	108	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	106	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	100	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	106	----	70	130	----	----	
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	110	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378994)</b>											
ES1407300-001	VU_MW05_010414	EP080: C6 - C9 Fraction	----	325 µg/L	121	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378994)</b>											
ES1407300-001	VU_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3378994)</b>											
ES1407300-001	VU_MW05_010414	EP080: Benzene	71-43-2	25 µg/L	110	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	88.1	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407300</b>	Page	: 1 of 6
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: SYMPHONY DELTACOAST	Contact	: Barbara Hanna
Address	: GRND FLOOR, 33 SAUNDERS STREET PYRMONT NSW AUSTRALIA 2009	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: symphony.deltacoast@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 10-APR-2014
Sampler	: S.BROOKES	No. of samples received	: 11
Order number	: 0237747	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020F: Dissolved Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)</b> VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414	01-APR-2014	---	28-SEP-2014	----	07-APR-2014	28-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)</b> VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414	01-APR-2014	---	29-APR-2014	----	08-APR-2014	29-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b> VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414	01-APR-2014	05-APR-2014	08-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b> VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414	01-APR-2014	05-APR-2014	08-APR-2014	✓	08-APR-2014	15-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414,	01-APR-2014	05-APR-2014	08-APR-2014	✓	08-APR-2014	15-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414, TS3	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414, TB3,	01-APR-2014	09-APR-2014	15-APR-2014	✓	09-APR-2014	15-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VU_MW05_010414, D01_010414_SB, VU_MW01_010414, VU_MW07_010414, VU_MW16_010414,	VU_MW04_010414, VU_MW06_010414, VU_MW02_010414, VU_MW17_010414, TB3	01-APR-2014	09-APR-2014	15-APR-2014	✓	09-APR-2014	15-APR-2014	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	4	33	12.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	9	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	2	33	6.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	2	33	6.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	11.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	2	33	6.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	9	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	9	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	9	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	9	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	9	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report**

**Work Order** : **ES1407300**

**Client** : **ENVIRO RESOURCES MANAGEMENT**      **Laboratory** : Environmental Division Sydney

**Contact** : SYMPHONY DELTACOAST      **Contact** : Barbara Hanna  
**Address** : GRND FLOOR, 33 SAUNDERS STREET      **Address** : 277-289 Woodpark Road Smithfield  
PYRMONT NSW AUSTRALIA 2009      NSW Australia 2164

**E-mail** : symphony.deltacoast@erm.com      **E-mail** : Barbara.Hanna@alsglobal.com  
**Telephone** : +61 02 8584 8888      **Telephone** : +61 2 8784 8555  
**Facsimile** : +61 02 8584 8800      **Facsimile** : +61 2 8784 8555

**Project** : VALES POINT POWER STATION      **Page** : 1 of 2  
**Order number** : 0237747  
**C-O-C number** : ----      **Quote number** : ES2013ENVRES0354 (EN/009/13)  
**Site** : ----  
**Sampler** : S.BROOKES      **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

**Dates**

**Date Samples Received** : 02-APR-2014      **Issue Date** : 03-APR-2014 10:49  
**Client Requested Due Date** : 10-APR-2014      **Scheduled Reporting Date** : **10-APR-2014**

**Delivery Details**

**Mode of Delivery** : Carrier      **Temperature** : 3.9°C - Ice present  
**No. of coolers/boxes** : 9 HARD      **No. of samples received** : 11  
**Security Seal** : Intact.      **No. of samples analysed** : 11

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01 to be forwarded to Envirolab.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1407300-001	01-APR-2014 15:00	VU_MW05_010414			✓
ES1407300-002	01-APR-2014 15:00	VU_MW04_010414			✓
ES1407300-003	01-APR-2014 15:00	D01_010414_SB			✓
ES1407300-005	01-APR-2014 15:00	VU_MW06_010414			✓
ES1407300-006	01-APR-2014 15:00	VU_MW01_010414			✓
ES1407300-007	01-APR-2014 15:00	VU_MW02_010414			✓
ES1407300-008	01-APR-2014 15:00	VU_MW07_010414			✓
ES1407300-009	01-APR-2014 15:00	VU_MW17_010414			✓
ES1407300-010	01-APR-2014 15:00	VU_MW16_010414			✓
ES1407300-011	[ 01-APR-2014 ]	TB3		✓	
ES1407300-012	[ 01-APR-2014 ]	TS3	✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



**CHAIN OF CUSTODY**

ALS Laboratory:  
please tick →

DADELAIDE 21 Burns Road Poolville SA 5095  
Ph: 08 8556 0800 E: adeelaide@alsglobal.com

DMACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: dmackay@alsglobal.com

LSYDNEY 277-285 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8556 E: samples.lsydney@alsglobal.com

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** S. Brooker  
**COC emailed to ALS? ( YES / NO )**  
**RECEIVED BY:** S. Brooker  
**DATE/TIME:** 02/4/14 1900

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**ALS QUOTE NO.:** 0450099834  
**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** 0450099834  
**EDD FORMAT (or default):** symphony.deltacosast@erm.com  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltacosast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltacosast@erm.com

**FOR LABORATORY USE ONLY (Circle):**  
 Heavy Metals  
 Trace Metals  
 PCBs  
 Pesticides  
 PAHs  
 VOCs  
 Phthalates  
 Other Contaminants  
 Other

**RECEIVED BY:** \_\_\_\_\_  
**DATE/TIME:** \_\_\_\_\_

**RELINQUISHED BY:** \_\_\_\_\_  
**DATE/TIME:** \_\_\_\_\_

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	CONTAINERS (refer to TOTAL)	ANALYSIS REQUIRED (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
						13 METALS (W-3) + B, Mo, Tl, Se	8 METALS (W-2)	PHENOLS (W-24) THBTX/PAH	VOC	PCB	NT-1 (Ca, Mg, Na, K)	NT-2 (Al, SO4, Cl)	PFOA/FFOA	Ultra Trace PAH	Ultra Trace Metals	
1	VU-MW05-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	Subcon / Forward Lab / Spin WO / Lab / Analysis: TOI-010414-SB	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.  1 x vial on hold  Please refer to Sample 98. 1 x vial on hold
2	VU-MW04-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
3	DOI-010414-SB	1.4.14	W		2+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
4	TOI-010414-SB	1.4.14	W		2+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
5	VU-MW06-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
6	VU-MW01-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
7	VU-MW02-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
8	VU-MW07-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
9	VU-MW07-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
10	VU-MW16-010414	1.4.14	W		3+1+1	X	X	X	X	X	X	X	X	X	TOI-010414-SB	
<b>TOTAL</b>																

Environmental Division  
Sydney  
Work Order  
**ES1407300**



Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CRC = Nitric Preserved Plastic; N = Nitric Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Glass; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1407301</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SN <b>Site</b> : ----  <b>Quote number</b> : SY/050/14 V3	<b>Page</b> : 1 of 11  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 02-APR-2014 <b>Issue Date</b> : 10-APR-2014  <b>No. of samples received</b> : 11 <b>No. of samples analysed</b> : 11
---	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VB_MW05_010414	VU_MW12_010414	VU_MW14_010414	VU_MW09_010414	VD_MW02_010414
				01-APR-2014 08:10	01-APR-2014 09:18	01-APR-2014 10:04	01-APR-2014 10:38	01-APR-2014 11:32
				ES1407301-001	ES1407301-002	ES1407301-003	ES1407301-004	ES1407301-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<b>0.001</b>
Cadmium	7440-43-9	0.0001	mg/L	<b>0.0001</b>	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<b>0.005</b>	<b>0.003</b>	<b>0.003</b>	<b>0.003</b>	<b>0.003</b>
Lead	7439-92-1	0.001	mg/L	<0.001	<b>0.002</b>	<0.001	<0.001	<b>0.001</b>
Nickel	7440-02-0	0.001	mg/L	<b>0.010</b>	<b>0.002</b>	<b>0.001</b>	<b>0.003</b>	<b>0.005</b>
Zinc	7440-66-6	0.005	mg/L	<b>0.040</b>	<b>0.025</b>	<b>0.023</b>	<b>0.078</b>	<b>0.023</b>
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	VB_MW05_010414	VU_MW12_010414	VU_MW14_010414	VU_MW09_010414	VD_MW02_010414
				01-APR-2014 08:10	01-APR-2014 09:18	01-APR-2014 10:04	01-APR-2014 10:38	01-APR-2014 11:32
				ES1407301-001	ES1407301-002	ES1407301-003	ES1407301-004	ES1407301-005
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<b>70</b>	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<b>80</b>	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<b>80</b>	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

## EP075(SIM)S: Phenolic Compound Surrogates



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VB_MW05_010414	VU_MW12_010414	VU_MW14_010414	VU_MW09_010414	VD_MW02_010414
Client sampling date / time	01-APR-2014 08:10	01-APR-2014 09:18	01-APR-2014 10:04	01-APR-2014 10:38	01-APR-2014 11:32
	ES1407301-001	ES1407301-002	ES1407301-003	ES1407301-004	ES1407301-005

Compound	CAS Number	LOR	Unit	ES1407301-001	ES1407301-002	ES1407301-003	ES1407301-004	ES1407301-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
Phenol-d6	13127-88-3	0.1	%	35.9	32.1	39.0	26.1	25.9
2-Chlorophenol-D4	93951-73-6	0.1	%	69.8	63.2	75.2	49.4	49.4
2,4,6-Tribromophenol	118-79-6	0.1	%	77.7	59.3	66.6	43.7	50.0
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	74.3	62.1	72.2	46.4	48.8
Anthracene-d10	1719-06-8	0.1	%	94.0	72.4	92.4	58.7	63.8
4-Terphenyl-d14	1718-51-0	0.1	%	107	90.8	104	67.6	76.1
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	108	122	132	105
Toluene-D8	2037-26-5	0.1	%	88.7	98.9	91.0	96.0	105
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	107	92.4	109	106



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VD_MW01_010414	VU_MW15_010414	VI_MW02_010414	D01__010414_SN	R01_010414_SN
				01-APR-2014 13:20	01-APR-2014 14:24	01-APR-2014 15:15	01-APR-2014 08:00	01-APR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407301-006	ES1407301-007	ES1407301-008	ES1407301-009	ES1407301-010
<b>ED037P: Alkalinity by PC Titrator</b>								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	23	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	23	----	----
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	60	----	----
<b>ED045G: Chloride Discrete analyser</b>								
Chloride	16887-00-6	1	mg/L	----	----	68	----	----
<b>ED093F: Dissolved Major Cations</b>								
Calcium	7440-70-2	1	mg/L	----	----	9	----	----
Magnesium	7439-95-4	1	mg/L	----	----	5	----	----
Sodium	7440-23-5	1	mg/L	----	----	70	----	----
Potassium	7440-09-7	1	mg/L	----	----	2	----	----
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	----	----	0.049	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	----	----	0.003	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.003	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	0.167	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	0.232	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	0.004	0.003	0.006	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	<0.01	----	----
Thallium	7440-28-0	0.001	mg/L	----	----	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L	----	----	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	0.012	0.027	0.024	<0.005	<0.005
Boron	7440-42-8	0.05	mg/L	----	----	0.07	----	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EN055: Ionic Balance</b>								



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

VD_MW01_010414	VU_MW15_010414	VI_MW02_010414	D01__010414_SN	R01_010414_SN
01-APR-2014 13:20	01-APR-2014 14:24	01-APR-2014 15:15	01-APR-2014 08:00	01-APR-2014 14:00
ES1407301-006	ES1407301-007	ES1407301-008	ES1407301-009	ES1407301-010

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1407301-006	ES1407301-007	ES1407301-008	ES1407301-009	ES1407301-010
<b>EN055: Ionic Balance - Continued</b>								
Total Anions	----	0.01	meq/L	----	----	4.10	----	----
Total Cations	----	0.01	meq/L	----	----	3.96	----	----
Ionic Balance	----	0.01	%	----	----	1.81	----	----

### EP075(SIM)A: Phenolic Compounds

Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VD_MW01_010414	VU_MW15_010414	VI_MW02_010414	D01__010414_SN	R01_010414_SN
				01-APR-2014 13:20	01-APR-2014 14:24	01-APR-2014 15:15	01-APR-2014 08:00	01-APR-2014 14:00
Compound	CAS Number	LOR	Unit	ES1407301-006	ES1407301-007	ES1407301-008	ES1407301-009	ES1407301-010
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>								
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	80	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	100	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	100	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	2	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	2	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	30.9	26.5	24.2	26.8	27.2
2-Chlorophenol-D4	93951-73-6	0.1	%	59.0	53.2	56.3	54.7	56.6
2,4,6-Tribromophenol	118-79-6	0.1	%	61.9	48.2	46.6	51.6	55.1
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	54.3	50.6	61.7	59.2	58.6
Anthracene-d10	1719-06-8	0.1	%	63.5	55.0	57.2	67.0	83.2
4-Terphenyl-d14	1718-51-0	0.1	%	94.8	80.1	85.0	77.8	111



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	VD_MW01_010414	VU_MW15_010414	VI_MW02_010414	D01__010414_SN	R01_010414_SN
Client sampling date / time	01-APR-2014 13:20	01-APR-2014 14:24	01-APR-2014 15:15	01-APR-2014 08:00	01-APR-2014 14:00
Compound	ES1407301-006	ES1407301-007	ES1407301-008	ES1407301-009	ES1407301-010

Compound CAS Number LOR Unit

### EP075(SIM)T: PAH Surrogates - Continued

### EP080S: TPH(V)/BTEX Surrogates

1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	109	114	121	107
Toluene-D8	2037-26-5	0.1	%	94.7	82.8	95.5	89.8	106
4-Bromofluorobenzene	460-00-4	0.1	%	96.0	101	93.0	111	105



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				TRIP BLANK	---	---	---	---
				01-APR-2014 15:00	---	---	---	---
Compound	CAS Number	LOR	Unit	ES1407301-011	---	---	---	---
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	<1	---	---	---	---
Toluene	108-88-3	2	µg/L	<2	---	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	---	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	---	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	---	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	<2	---	---	---	---
^ Sum of BTEX	---	1	µg/L	<1	---	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	---	---	---	---
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	---	---	---	---
Toluene-D8	2037-26-5	0.1	%	84.6	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	98.6	---	---	---	---





## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP075(SIM): Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM): PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1407301</b>	Page	: 1 of 10
<b>Client</b>	<b>: ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 02-APR-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 10-APR-2014
<b>Sampler</b>	: SN	<b>No. of samples received</b>	: 11
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 11
<b>Quote number</b>	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 3375806)</b>									
ES1407294-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	9	8	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	9	8	0.0	No Limit
ES1407308-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	124	124	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	124	124	0.0	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3376898)</b>									
ES1407295-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	45	49	7.5	0% - 20%
ES1407503-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
<b>ED045G: Chloride Discrete analyser (QC Lot: 3376897)</b>									
ES1407295-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	72	73	0.0	0% - 20%
ES1407503-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
<b>ED093F: Dissolved Major Cations (QC Lot: 3376896)</b>									
ES1407497-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	10	10	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ES1407503-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	73	72	1.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	43	43	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	193	189	2.2	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	24	25	0.0	0% - 20%
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3377610)</b>									
ES1407254-023	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.006	0.007	23.7	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.052	0.054	3.2	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.16	1.16	0.6	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.028	0.029	4.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3377610) - continued</b>										
ES1407254-023	Anonymous	EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.031	0.033	6.2	No Limit	
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.24	0.23	0.0	No Limit	
ES1407301-001	VB_MW05_010414	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.254	0.257	0.8	0% - 20%	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.017	0.017	0.0	0% - 50%	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.774	0.718	7.5	0% - 20%	
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.010	0.010	0.0	0% - 50%	
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.040	0.043	7.9	No Limit	
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.07	0.06	0.0	No Limit			
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3377611)</b>										
ES1407301-001	VB_MW05_010414	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3378992)</b>										
ES1407301-001	VB_MW05_010414	EP080: C6 - C9 Fraction	----	20	µg/L	70	70	0.0	No Limit	
ES1407301-009	D01__010414_SN	EP080: C6 - C9 Fraction	----	20	µg/L	80	90	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3378992)</b>										
ES1407301-001	VB_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	80	90	0.0	No Limit	
ES1407301-009	D01__010414_SN	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	100	110	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3378992)</b>										
ES1407301-001	VB_MW05_010414	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1407301-009	D01__010414_SN	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	

Page : 5 of 10  
 Work Order : ES1407301  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: **WATER**

*Laboratory Duplicate (DUP) Report*

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
<b>EP080: BTEXN (QC Lot: 3378992) - continued</b>									
ES1407301-009	D01__010414_SN	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>ED037P: Alkalinity by PC Titrator (QCLot: 3375806)</b>									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	88.7	81	111	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3376898)</b>									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	94.8	86	122	
<b>ED045G: Chloride Discrete analyser (QCLot: 3376897)</b>									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	97.4	77	123	
<b>ED093F: Dissolved Major Cations (QCLot: 3376896)</b>									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	100	90	114	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	96.4	90	110	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	82	118	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	87	117	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3377610)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.2	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.1	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.7	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.8	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.4	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	94.7	79	117	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.7	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	98.5	81	117	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.0	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	96.0	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3377611)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	93.7	78	114	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3375303)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	50.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	82.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3375303) - continued</b>									
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	81.4	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	79.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	69.3	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	65.6	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	62.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.1	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.2	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	71.2	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	75.6	10	95	
		2	µg/L	<2.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3375303)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	83.3	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	# 61.7	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	71.8	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	70.9	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	72.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	70.5	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.8	64.1	117	
		1	µg/L	<1.0	----	----	----	----	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3375303) - continued</b>									
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	70.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	71.0	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	71.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	80.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	67.8	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	74.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	74.7	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3375302)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.6	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.6	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.6	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3375302)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	98.9	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.8	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	93.8	75	127	
<b>EP080: BTEXN (QCLot: 3378992)</b>									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	111	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	121	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	113	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	70	124	

Matrix Spike (MS) Report



The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)		
					Low	High		
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3376898)</b>								
ES1407295-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130	
<b>ED045G: Chloride Discrete analyser (QCLot: 3376897)</b>								
ES1407295-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	97.1	70	130	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3377610)</b>								
ES1407254-023	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	70	130	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	95.4	70	130	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.8	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	101	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.4	70	130	
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	100	70	130	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.1	70	130	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	70	130	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	70	130	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	94.7	70	130	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	95.8	70	130	
EG020A-F: Zinc	7440-66-6	0.2 mg/L	98.7	70	130			
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3377611)</b>								
ES1407301-001	VB_MW05_010414	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.6	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>								
ES1407301-001	VB_MW05_010414	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>								
ES1407301-001	VB_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70	130	
<b>EP080: BTEXN (QCLot: 3378992)</b>								
ES1407301-001	VB_MW05_010414	EP080: Benzene	71-43-2	25 µg/L	106	70	130	
		EP080: Toluene	108-88-3	25 µg/L	122	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	122	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	117	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	120	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	118	70	130		

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
<b>ED045G: Chloride Discrete analyser (QCLot: 3376897)</b>											
ES1407295-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	97.1	----	70	130	----	----	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3376898)</b>											
ES1407295-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3377610)</b>											
ES1407254-023	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	----	70	130	----	----	
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	95.4	----	70	130	----	----	
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.8	----	70	130	----	----	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	101	----	70	130	----	----	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.4	----	70	130	----	----	
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	100	----	70	130	----	----	
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.1	----	70	130	----	----	
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.5	----	70	130	----	----	
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	# Not Determined	----	70	130	----	----	
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	94.7	----	70	130	----	----	
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	95.8	----	70	130	----	----	
EG020A-F: Zinc	7440-66-6	0.2 mg/L	98.7	----	70	130	----	----			
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3377611)</b>											
ES1407301-001	VB_MW05_010414	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.6	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3378992)</b>											
ES1407301-001	VB_MW05_010414	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3378992)</b>											
ES1407301-001	VB_MW05_010414	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3378992)</b>											
ES1407301-001	VB_MW05_010414	EP080: Benzene	71-43-2	25 µg/L	106	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	122	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	122	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	117	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	120	----	70	130	----	----	
	91-20-3	EP080: Naphthalene		25 µg/L	118	----	70	130	----	----	

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1407301</b>	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 02-APR-2014
C-O-C number	: ----	Issue Date	: 10-APR-2014
Sampler	: SN	No. of samples received	: 11
Order number	: 0237747	No. of samples analysed	: 11
Quote number	: SY/050/14 V3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>ED037P: Alkalinity by PC Titrator</b>							
Clear Plastic Bottle - Natural (ED037-P) VI_MW02_010414	01-APR-2014	---	15-APR-2014	----	04-APR-2014	15-APR-2014	✓
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>							
Clear Plastic Bottle - Natural (ED041G) VI_MW02_010414	01-APR-2014	---	29-APR-2014	----	04-APR-2014	29-APR-2014	✓
<b>ED045G: Chloride Discrete analyser</b>							
Clear Plastic Bottle - Natural (ED045G) VI_MW02_010414	01-APR-2014	---	29-APR-2014	----	04-APR-2014	29-APR-2014	✓
<b>ED093F: Dissolved Major Cations</b>							
Clear Plastic Bottle - Natural (ED093F) VI_MW02_010414	01-APR-2014	---	08-APR-2014	----	04-APR-2014	08-APR-2014	✓
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VB_MW05_010414, VU_MW12_010414, VU_MW14_010414, VU_MW09_010414, VD_MW02_010414, VD_MW01_010414, VU_MW15_010414, VI_MW02_010414, D01_010414_SN, R01_010414_SN	01-APR-2014	---	28-SEP-2014	----	07-APR-2014	28-SEP-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VB_MW05_010414, VU_MW12_010414, VU_MW14_010414, VU_MW09_010414, VD_MW02_010414, VD_MW01_010414, VU_MW15_010414, VI_MW02_010414, D01_010414_SN, R01_010414_SN	01-APR-2014	---	29-APR-2014	----	08-APR-2014	29-APR-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Amber Glass Bottle - Unpreserved (EP071) VB_MW05_010414, VU_MW12_010414, VU_MW14_010414, VU_MW09_010414, VD_MW02_010414, VD_MW01_010414, VU_MW15_010414, VI_MW02_010414, D01_010414_SN, R01_010414_SN	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP075(SIM)A: Phenolic Compounds</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VB_MW05_010414, VU_MW14_010414, VD_MW02_010414, VU_MW15_010414, D01_010414_SN,	VU_MW12_010414, VU_MW09_010414, VD_MW01_010414, VI_MW02_010414, R01_010414_SN	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
VB_MW05_010414, VU_MW14_010414, VD_MW02_010414, VU_MW15_010414, D01_010414_SN,	VU_MW12_010414, VU_MW09_010414, VD_MW01_010414, VI_MW02_010414, R01_010414_SN	01-APR-2014	07-APR-2014	08-APR-2014	✓	09-APR-2014	17-MAY-2014	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VB_MW05_010414, VU_MW14_010414, VD_MW02_010414, VU_MW15_010414, D01_010414_SN, TRIP BLANK	VU_MW12_010414, VU_MW09_010414, VD_MW01_010414, VI_MW02_010414, R01_010414_SN,	01-APR-2014	08-APR-2014	15-APR-2014	✓	08-APR-2014	15-APR-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
VB_MW05_010414, VU_MW14_010414, VD_MW02_010414, VU_MW15_010414, D01_010414_SN, TRIP BLANK	VU_MW12_010414, VU_MW09_010414, VD_MW01_010414, VI_MW02_010414, R01_010414_SN,	01-APR-2014	08-APR-2014	15-APR-2014	✓	08-APR-2014	15-APR-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	10	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	14.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	17	0.0	10.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	10	10.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	7.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	0	17	0.0	5.0	✘	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement





## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO <sub>4</sub> <sup>2-</sup> by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO <sub>4</sub> Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO <sub>4</sub> suspension is measured by a photometer and the SO <sub>4</sub> <sup>2-</sup> concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)  Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3)  Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO <sub>4</sub> DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO <sub>4</sub> by DA. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3)





<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	4032910-007	----	<b>Acenaphthene</b>	83-32-9	61.7 %	62.2-113%	<b>Recovery less than lower control limit</b>
<b>Matrix Spike (MS) Recoveries</b>							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1407295-001	Anonymous	<b>Sulfate as SO4 - Turbidimetric</b>	14808-79-8	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>
EG020F: Dissolved Metals by ICP-MS	ES1407254-023	Anonymous	<b>Manganese</b>	7439-96-5	Not Determined	----	<b>MS recovery not determined, background level greater than or equal to 4x spike level.</b>

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	17	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	17	0.0	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	17	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	0	17	0.0	5.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

## SAMPLE RECEIPT NOTIFICATION (SRN)

### Comprehensive Report

**Work Order : ES1407301**

<p><b>Client : ENVIRO RESOURCES MANAGEMENT</b></p> <p><b>Contact : JOHN EWING</b></p> <p><b>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</b></p>	<p><b>Laboratory : Environmental Division Sydney</b></p> <p><b>Contact : Barbara Hanna</b></p> <p><b>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</b></p>
--	--

<p><b>E-mail : john.ewing@erm.com</b></p> <p><b>Telephone : +61 02 8584 8888</b></p> <p><b>Facsimile : +61 02 8584 8800</b></p>	<p><b>E-mail : Barbara.Hanna@alsglobal.com</b></p> <p><b>Telephone : +61 2 8784 8555</b></p> <p><b>Facsimile : +61 2 8784 8555</b></p>
---	--

<p><b>Project : VALES POINT POWER STATION</b></p> <p><b>Order number : 0237747</b></p> <p><b>C-O-C number : ----</b></p> <p><b>Site : ----</b></p> <p><b>Sampler : SN</b></p>	<p><b>Page : 1 of 2</b></p> <p><b>Quote number : ES2014ENVRES0385 (SY/050/14 V3)</b></p> <p><b>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</b></p>
---	--

#### Dates

<p><b>Date Samples Received : 02-APR-2014</b></p> <p><b>Client Requested Due Date : 10-APR-2014</b></p>	<p><b>Issue Date : 04-APR-2014 09:34</b></p> <p><b>Scheduled Reporting Date : <b>10-APR-2014</b></b></p>
---	--

#### Delivery Details

<p><b>Mode of Delivery : Carrier</b></p> <p><b>No. of coolers/boxes : 9 HARD</b></p> <p><b>Security Seal : Intact.</b></p>	<p><b>Temperature : 3.9°C - Ice present</b></p> <p><b>No. of samples received : 11</b></p> <p><b>No. of samples analysed : 11</b></p>
--	---

#### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **1 x 40ml VOC vial received broken for sample R01\_010414\_SN.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1407301-001	01-APR-2014 08:10	VB_MW05_010414								✓
ES1407301-002	01-APR-2014 09:18	VU_MW12_010414								✓
ES1407301-003	01-APR-2014 10:04	VU_MW14_010414								✓
ES1407301-004	01-APR-2014 10:38	VU_MW09_010414								✓
ES1407301-005	01-APR-2014 11:32	VD_MW02_010414								✓
ES1407301-006	01-APR-2014 13:20	VD_MW01_010414								✓
ES1407301-007	01-APR-2014 14:24	VU_MW15_010414								✓
ES1407301-008	01-APR-2014 15:15	VI_MW02_010414	✓	✓	✓	✓	✓		✓	
ES1407301-009	01-APR-2014 08:00	D01__010414_SN								✓
ES1407301-010	01-APR-2014 14:00	R01_010414_SN								✓
ES1407301-011	01-APR-2014 15:00	TRIP BLANK						✓		

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

## Requested Deliverables

### JOHN EWING

- *AU Certificate of Analysis - NATA ( COA )	Email	john.ewing@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	john.ewing@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	john.ewing@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	john.ewing@erm.com
- Chain of Custody (CoC) ( COC )	Email	john.ewing@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	john.ewing@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	john.ewing@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	john.ewing@erm.com
- EDI Format - XTab ( XTAB )	Email	john.ewing@erm.com

### SYMPHONY DELTACOAST

- *AU Certificate of Analysis - NATA ( COA )	Email	symphony.deltacoast@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )	Email	symphony.deltacoast@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )	Email	symphony.deltacoast@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT ( SRN )	Email	symphony.deltacoast@erm.com
- A4 - AU Tax Invoice ( INV )	Email	symphony.deltacoast@erm.com
- Chain of Custody (CoC) ( COC )	Email	symphony.deltacoast@erm.com
- EDI Format - ENMRG ( ENMRG )	Email	symphony.deltacoast@erm.com
- EDI Format - EQUIS V5 ERM ( EQUIS_V5_ERM )	Email	symphony.deltacoast@erm.com
- EDI Format - ESDAT ( ESDAT )	Email	symphony.deltacoast@erm.com
- EDI Format - XTab ( XTAB )	Email	symphony.deltacoast@erm.com

### THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice ( INV )	Email	au.accounts@erm.com
-------------------------------	-------	---------------------



# CHAIN OF CUSTODY

DIARLAGE 21 Surra Road, Portlaurie SA 5065  
Ph: 08 8529 6870 E: admin@alsglobal.com

CHRISTIANE 32 Shance Street, Stafford QLD 4053  
Ph: 07 3245 7222 E: samples@alsglobal.com

DOLANSON 48 Callamoneah Drive, Chilton QLD 4680  
Ph: 07 7471 5600 E: glodson@alsglobal.com

DINACKAY 78 Harbour Road, Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com

DIMELBOURNE 24 Westall Road, Springvale VIC 3171  
Ph: 03 8549 3800 E: samples.melbourne@alsglobal.com

DINDUGEE 27 Sydney Road, Mulgoona NSW 2850  
Ph: 02 9372 6725 E: mulgoona@alsglobal.com

DINWICAST 155 Ross Gum Road, Warabook NSW 2304  
Ph: 02 4960 9433 E: samples.norwest@alsglobal.com

DINWYRA 413 Gearty Place, North Wyalong NSW 2541  
Ph: 024423 2063 E: nyonra@alsglobal.com

DIRENTI 110 Hind Way, Manjimba WA 6050  
Ph: 08 9509 7655 E: samples.perth@alsglobal.com

DISDNEY 277-281 Woodcock Road, Smithfield NSW 2164  
Ph: 02 9741 6555 E: smithfield@alsglobal.com

UDYNSVILLE 1416 Debra Court, Dore QLD 4816  
Ph: 07 4796 0600 E: townsville.environment@alsglobal.com

DAWOLONGCHONG 89 Kenny Street, Wollongong NSW 2500  
Ph: 02 4226 3125 E: portlaurie@alsglobal.com

ALS Laboratory:  
please tick →

CLIENT: ERM  
OFFICE: PYRMONT  
PROJECT: VALES POINT POWER STATION  
ORDER NUMBER: 0237747  
SITE MANAGER: JOHN EWING  
CONTACT PH: 0401 776 230  
SAMPLER MOBILE:  
SAMPLER: SURESH MATHALAPATI  
COC emailed to ALS? (YES) (NO)  
Email Reports to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com  
Email Invoice to (will default to PM if no other addresses are listed): symphony.deltacoast@erm.com

TURNAROUND REQUIREMENTS:  
Standard TAT (List due date):  
Non Standard or urgent TAT (List due date):  
COC SEQUENCE NUMBER (Circle)  
COC: 1 2 3 4 5 6 7  
OF: 1 2 3 4 5 6 7  
RECEIVED BY: SURESH MATHALAPATI  
DATE/TIME: 01.04.2014  
RELINQUISHED BY: SURESH MATHALAPATI  
DATE/TIME: 02/04/14 1900

FOR LABORATORY USE ONLY (Circle)  
Customer Seal Intact? (X)  
New Seal Intact? (X)  
Random Sample Temperature on Receipt? (X)  
Other Comments:

RECEIVED BY: SURESH MATHALAPATI  
DATE/TIME: 02/04/14 1900  
RELINQUISHED BY: SURESH MATHALAPATI  
DATE/TIME: 02/04/14 1900

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Tl, Se	TPH/BTEX/PAH	ASBESTOS	VOC	PB	PFOA/PFOA	PH/CEC	PSD sieve / TOC	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information	
1	VB-mw05-D10414	01.04.14 8:10	W	AG, VS, N	5	X	X	X										HOLD FOR ONE MONTH VIAL	
2	VU-mw12-D10414	" 9:18	"	AG, VS, N	4	X	X	X										VIAL COLD	
3	NV-mw14-D10414	" 10:04	"	AG, VS, N	4	X	X	X											
4	VU-mw09-D10414	" 10:38	"	AG, VS, N	4	X	X	X											
5	VP-mw02-D10414	" 11:32	"	AG, VS, N	5	X	X	X										HOLD FOR ONE MONTH VIAL	
6	VP-mw01-D10414	" 13:20	"	AG, VS, N	5	X	X	X										"	
7	VJ-mw15-D10414	" 14:24	"	AG, VS, N	4	X	X	X										"	
8	VI-mw02-D10414	" 15:15	"	AG, VS, N, P	5	X	X	X										ANIONS + CATIONS	
9	DOA-010414-SN	" 8:00	"	AG, VS, N	4	X	X	X											
10	RO1-D10414-SN	" 14:00	"	AG, VS, N	4	X	X	X											
11	TRIP BLANK	-	-	VS	1													TPH + BTEX ONLY	
12	TRIP SPIKE SN	-	-	VS SN	2													SN	
TOTAL					48	5													

Environmental Division  
Sydney  
Work Order  
**ES1407301**



Telephone: + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitrite Preserved Plastic; ORC = Nitrite Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Upright  
V = VOA Vial HCl Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air Tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HC  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

**ALS Environmental**

**CHAIN OF CUSTODY**

ALS Laboratory  
Please Tick →

DADDFALICE 21 Burns Road Penrith NSW 2150  
Ph: 02 6339 0500 E: admin@als.com.au

DORRISMAN 32 Strand Street Stirling QLD 4053  
Ph: 07 3243 7222 E: samples@als.com.au

DUNLOPSTONE 48 Callender Drive Clifton QLD 4680  
Ph: 07 7471 5500 E: gresstone@als.com.au

DMC/AV 73 Hillbrow Road Mackay QLD 4740  
Ph: 07 4834 0177 E: mac@als.com.au

DMR/ROUJANE 24 Westall Road Springfield VIC 3171  
Ph: 03 0549 9600 E: samples@als.com.au

DUALOCGE 87 Sydney Road Mulgrave NSW 2350  
Ph: 02 6372 6735 E: mulgrave@als.com.au

UNEWCASTLE 5 Rose Gully Road Waukesha NSW 2304  
Ph: 02 4968 4433 E: samples@als.com.au

DUNYUNA 413 Geary Place North Nowra NSW 2541  
Ph: 024422 2380 E: nowra@als.com.au

D/ERT 110 Road Way Mulgea VIC 6090  
Ph: 08 3209 1555 E: samples@als.com.au

DSYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555 E: samples@als.com.au

D/ROUNSWALLE 14-15 Derrin Court Boree QLD 4818  
Ph: 07 4796 0500 E: boree@als.com.au

DWOLLONGONG 59 Henry Street Wollongong NSW 2500  
Ph: 02 4225 3125 E: port@als.com.au

CLIENT: ERM

OFFICE: PYRMONT

PROJECT: VALES POINT POWER STATION

ORDER NUMBER: 02377417

SITE MANAGER: JOHN EWING

SAMPLER: **SURESH NYSALPATI**

COC emailed to ALS? YES **(NO)**

Email Reports to (will default to PM if no other addresses are listed): **synphony.deltacoast@erm.com**

Email Invoice to (will default to PM if no other addresses are listed): **synphony.deltacoast@erm.com**

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.:

Standard TAT (last due date):  **Standard TAT (last due date):**

Non Standard or Urgent TAT (last due date):

RELINQUISHED BY: **S-NYSALPATI**

DATE/TIME: **01-04-2014**

RECEIVED BY: **Sofia**

DATE/TIME: **02/4/14 1400**

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME:

COC SEQUENCE NUMBER (Circle)	1	2	3	4	5	6	7
YES							
NO							
N/A							

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS (refer to)	8 METALS (S-2)	13 METALS (S-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (S-24)	ASBESTOS	VOC	PCB	PFOS/PFOA	pH/CEC	PSD sieve / TOC Leco	EC Saturated Paste	Ultra Trace PAH	Ultra Trace Metals	Additional Information	
1	VB-MW05-D10414	01-04-14 8:10	"S"	AQ, VS, N	5	X	X	X										Hold for one week cold	
2	VU-MW02-D10414	01-04-14 9:28	"S"	AQ, VS, N	4	X	X	X											
3	VU-MW04-D10414	01-04-14 10:04	"S"	AQ, VS, N	4	X	X	X											
4	VU-MW09-D10414	01-04-14 10:38	"S"	AQ, VS, N	4	X	X	X											
5	VU-MW02-D10414	01-04-14 11:32	"S"	AQ, VS, N	5	X	X	X										Hold one week cold	
6	VU-MW01-D10414	01-04-14 13:20	"S"	AQ, VS, N	5	X	X	X										"	
7	VU-MW05-D10414	01-04-14 14:24	"S"	AQ, VS, N	4	X	X	X										"	
8	VI-MW02-D10414	01-04-14 15:15	"S"	AQ, VS, N, P	5	X	X	X										Various + CATIONS	
9	DOI-D10414-SN	01-04-14 8:00	"S"	AQ, VS, N	4	X	X	X											
10	ROI-D10414-SN	01-04-14 14:00	"S"	AQ, VS, N	4	X	X	X											
11	TRP BLANK		"S"	VS	2	X	X	X											
12	TRP SPK 5N		"S"	VS, S-N	2	X	X	X										TPH & BTEX ONLY	
<b>TOTAL</b>					48	5		5											

ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)

Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Urine

V = VOA Via HCl Preserved; VB = VOA Via Sodium Bisphosphate Preserved; VS = VOA Via Sulfuric Preserved; AV = Airflight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HC.

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Solids; B = Unpreserved Bag.

Telephone: +61-2-8784 8555

Environmental Division  
Sydney  
Work Order  
**ES1407301**

FOR LABORATORY USE ONLY (CHAIN OF CUSTODY)

Original Seal (filled)  
Revised Seal (filled)  
Revised Seal (filled)  
Revised Seal (filled)

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1411772</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SB, JE <b>Site</b> : ----  <b>Quote number</b> : EN/009/14	<b>Page</b> : 1 of 9  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAY-2014 <b>Issue Date</b> : 30-MAY-2014  <b>No. of samples received</b> : 10 <b>No. of samples analysed</b> : 7
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825  
 Accredited for compliance with  
 ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.**
- **EA200 Legend**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 'Trace' - Asbestos fibres detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres**
- **EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EP080: The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEX only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using reagent grade sand spiked with petrol. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.**





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				TS	TB	TSC1	----	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----	----
Compound	CAS Number	LOR	Unit	ES1411772-007	ES1411772-008	ES1411772-010	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	10	mg/kg	79	<10	92	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	10	mg/kg	91	<10	106	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	57	<10	70	----	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	0.2	mg/kg	0.7	<0.2	0.7	----	----
Toluene	108-88-3	0.5	mg/kg	16.2	<0.5	18.3	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	2.2	<0.5	2.3	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	10.5	<0.5	10.8	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	4.1	<0.5	4.3	----	----
^ Sum of BTEX	----	0.2	mg/kg	33.7	<0.2	36.4	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	14.6	<0.5	15.1	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.1	92.7	83.9	----	----
Toluene-D8	2037-26-5	0.1	%	102	96.0	94.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	103	95.3	94.3	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VP_MW01	D01_270514	VB_MW03	R01_270514	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----
Compound	CAS Number	LOR	Unit	ES1411772-001	ES1411772-002	ES1411772-003	ES1411772-011	----
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	0.0002	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	0.018	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	0.040	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	1	µg/L	----	<1	<1	<1	----
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Styrene	100-42-5	5	µg/L	----	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	----	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	----	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	----	<5	<5	<5	----
<b>EP074B: Oxygenated Compounds</b>								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	<50	<50	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VP_MW01	D01_270514	VB_MW03	R01_270514	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----
Compound	CAS Number	LOR	Unit	ES1411772-001	ES1411772-002	ES1411772-003	ES1411772-011	----
<b>EP074B: Oxygenated Compounds - Continued</b>								
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	<50	<50	----
<b>EP074C: Sulfonated Compounds</b>								
Carbon disulfide	75-15-0	5	µg/L	----	<5	<5	<5	----
<b>EP074D: Fumigants</b>								
2,2-Dichloropropane	594-20-7	5	µg/L	----	<5	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L	----	<5	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	----	<5	<5	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	----	<5	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	<5	<5	<5	----
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	----	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	----	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	----	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	----	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	<50	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L	----	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L	----	<5	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	<5	<5	<5	----
1,1-Dichloroethane	75-34-3	5	µg/L	----	<5	<5	<5	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	----	<5	<5	<5	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	----	<5	<5	<5	----
1,1-Dichloropropylene	563-58-6	5	µg/L	----	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	<5	<5	<5	----
1,2-Dichloroethane	107-06-2	5	µg/L	----	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	----	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	----	<5	<5	<5	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	----	<5	<5	<5	----
1,3-Dichloropropane	142-28-9	5	µg/L	----	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	----	<5	<5	<5	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	----	<5	<5	<5	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				VP_MW01	D01_270514	VB_MW03	R01_270514	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----
Compound	CAS Number	LOR	Unit	ES1411772-001	ES1411772-002	ES1411772-003	ES1411772-011	----
<b>EP074E: Halogenated Aliphatic Compounds - Continued</b>								
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	----	<5	<5	<5	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	----	<5	<5	<5	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	----	<5	<5	<5	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	----	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	----	<5	<5	<5	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	<5	<5	<5	----
<b>EP074F: Halogenated Aromatic Compounds</b>								
Chlorobenzene	108-90-7	5	µg/L	----	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	----	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	----	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	----	<5	<5	<5	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	----	<5	<5	<5	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	----	<5	<5	<5	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	----	<5	<5	<5	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	----	<5	<5	<5	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	----	<5	<5	<5	----
<b>EP074G: Trihalomethanes</b>								
Chloroform	67-66-3	5	µg/L	----	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	----	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	----	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	----	<5	<5	<5	----
<b>EP074H: Naphthalene</b>								
Naphthalene	91-20-3	7	µg/L	----	<7	<7	<7	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	----	3.5	2.9	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	<1.0	<1.0	<1.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VP_MW01	D01_270514	VB_MW03	R01_270514	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----
Compound	CAS Number	LOR	Unit	ES1411772-001	ES1411772-002	ES1411772-003	ES1411772-011	----
<b>EP075(SIM)A: Phenolic Compounds - Continued</b>								
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	----	<2.0	<2.0	<2.0	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(b+j)fluoranthene	205-99-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
C6 - C9 Fraction	----	20	µg/L	----	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	----	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	----	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	----	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	<50	<50	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	----	<100	<100	<100	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				VP_MW01	D01_270514	VB_MW03	R01_270514	----
				[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	[27-MAY-2014]	----
Compound	CAS Number	LOR	Unit	ES1411772-001	ES1411772-002	ES1411772-003	ES1411772-011	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued</b>								
>C16 - C34 Fraction	----	100	µg/L	----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	<100	<100	----
<b>EP080: BTEXN</b>								
Benzene	71-43-2	1	µg/L	6	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	6	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
<b>EP066S: PCB Surrogate</b>								
Decachlorobiphenyl	2051-24-3	0.1	%	----	91.9	88.0	84.3	----
<b>EP074S: VOC Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	115	109	110	----
Toluene-D8	2037-26-5	0.1	%	----	118	120	114	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	111	112	109	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	31.9	27.0	33.6	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	63.4	59.0	64.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	79.2	68.8	61.2	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	58.9	57.1	75.4	----
Anthracene-d10	1719-06-8	0.1	%	----	86.0	81.9	100	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	81.8	80.0	74.0	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.2	114	107	110	----
Toluene-D8	2037-26-5	0.1	%	119	103	106	100	----
4-Bromofluorobenzene	460-00-4	0.1	%	119	97.7	97.2	94.9	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	28.5	129
<b>EP074S: VOC Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES1411772</b>	Page	: 1 of 17
<b>Client</b>	: <b>ENVIRO RESOURCES MANAGEMENT</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: JOHN EWING	<b>Contact</b>	: Barbara Hanna
<b>Address</b>	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: john.ewing@erm.com	<b>E-mail</b>	: Barbara.Hanna@alsglobal.com
<b>Telephone</b>	: +61 02 8584 8888	<b>Telephone</b>	: +61 2 8784 8555
<b>Facsimile</b>	: +61 02 8584 8800	<b>Facsimile</b>	: +61 2 8784 8555
<b>Project</b>	: VALES POINT POWER STATION	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 27-MAY-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 30-MAY-2014
<b>Sampler</b>	: SB, JE	<b>No. of samples received</b>	: 10
<b>Order number</b>	: 0237747	<b>No. of samples analysed</b>	: 7
<b>Quote number</b>	: EN/009/14		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3461206)</b>										
ES1411769-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1411769-010	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3461206)</b>										
ES1411769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES1411769-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3461206)</b>										
ES1411769-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1411769-010	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3461353)</b>									
ES1411772-003	VB_MW03	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.040	0.036	11.4	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3461346)</b>									
ES1411479-025	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3461346) - continued</b>									
ES1411479-025	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.016	<0.005	100	No Limit
ES1411669-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.006	144	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3461351)</b>									
ES1411772-003	VB_MW03	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3463087)</b>									
ES1411479-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1411772-002	D01_270514	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
<b>EP074B: Oxygenated Compounds (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1411772-002	D01_270514	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074B: Oxygenated Compounds (QC Lot: 3461327) - continued</b>									
ES1411772-002	D01_270514	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
<b>EP074C: Sulfonated Compounds (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1411772-002	D01_270514	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
<b>EP074D: Fumigants (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1411772-002	D01_270514	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP074E: Halogenated Aliphatic Compounds (QC Lot: 3461327) - continued</b>									
ES1411701-001	Anonymous	EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1411772-002	D01_270514	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3461327)</b>									
ES1411701-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP074F: Halogenated Aromatic Compounds (QC Lot: 3461327) - continued</b>										
ES1411701-001	Anonymous	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
ES1411772-002	D01_270514	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074G: Trihalomethanes (QC Lot: 3461327)</b>										
ES1411701-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
ES1411772-002	D01_270514	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
<b>EP074H: Naphthalene (QC Lot: 3461327)</b>										
ES1411701-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1411772-002	D01_270514	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3461328)</b>										
ES1411701-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1411772-002	D01_270514	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3461328)</b>										
ES1411701-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1411772-002	D01_270514	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3461328)</b>										
ES1411701-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1411772-002	D01_270514	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	

Page : 8 of 17  
 Work Order : ES1411772  
 Client : ENVIRO RESOURCES MANAGEMENT  
 Project : VALES POINT POWER STATION



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080: BTEXN (QC Lot: 3461328) - continued</b>									
ES1411772-002	D01_270514	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461206)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	116	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461206)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	118	68.4	128	
<b>EP080: BTEXN (QCLot: 3461206)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.0	62	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.5	62	128	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.5	58	118	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	98.1	60	120	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	60	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.6	62	138	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3461353)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	89.9	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.1	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.8	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.3	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	81	115	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	80	116	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3461346)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.2	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.3	83	113	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.3	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.3	84	116	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.6	84	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.4	77	117	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3461351)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	86.8	78	114	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3463087)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	93.1	77	115	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3461159)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	99.1	61.6	107	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3463040)</b>									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	94.9	61.6	107	
<b>EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3461327)</b>									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	109	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	113	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	112	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	113	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	111	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	112	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	114	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	112	62	126	
<b>EP074B: Oxygenated Compounds (QCLot: 3461327)</b>									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	97.7	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	95.4	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	87.5	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	93.4	65	137	
<b>EP074C: Sulfonated Compounds (QCLot: 3461327)</b>									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	94.0	72.8	127	
<b>EP074D: Fumigants (QCLot: 3461327)</b>									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	# 120	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	90.6	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	84.7	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	103	69	117	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3461327)</b>									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	79.2	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	87.7	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	89.4	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	115	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	97.5	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	97.5	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	94.5	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	75.2	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	95.3	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	97.9	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3461327) - continued</b>									
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.4	61	119	
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	102	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	102	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	98.9	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	93.2	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	103	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	107	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	114	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	91.4	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	92.7	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	97.5	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	94.3	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	96.2	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	96.7	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	86.5	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	121	58	132	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3461327)</b>									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	112	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	112	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	114	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	115	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	112	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	109	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	114	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	109	67	125	
<b>EP074G: Trihalomethanes (QCLot: 3461327)</b>									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	98.5	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	94.5	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.5	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	92.4	73.5	126	
<b>EP074H: Naphthalene (QCLot: 3461327)</b>									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	92.8	61	125	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3461161)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	<1.0	5 µg/L	38.8	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	<1.0	5 µg/L	78.3	63.8	110	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	<1.0	5 µg/L	63.1	55.9	112	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3461161) - continued</b>									
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	<2.0	10 µg/L	62.5	42.5	114	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	<1.0	5 µg/L	69.6	62.7	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	<1.0	5 µg/L	75.4	59.9	112	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	<1.0	5 µg/L	66.8	59.3	122	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	<1.0	5 µg/L	87.0	64.3	118	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	<1.0	5 µg/L	68.5	63	119	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	<1.0	5 µg/L	70.3	58.7	118	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	<1.0	5 µg/L	68.7	50	108	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	<2.0	10 µg/L	43.1	10	95	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3463039)</b>									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	<1.0	5 µg/L	48.4	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	<1.0	5 µg/L	72.9	63.8	110	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	<1.0	5 µg/L	86.4	55.9	112	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	<2.0	10 µg/L	75.6	42.5	114	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	<1.0	5 µg/L	80.4	62.7	117	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	<1.0	5 µg/L	92.9	59.9	112	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	<1.0	5 µg/L	85.0	59.3	122	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	<1.0	5 µg/L	83.3	64.3	118	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	<1.0	5 µg/L	85.6	63	119	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	<1.0	5 µg/L	89.8	58.7	118	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	<1.0	5 µg/L	95.7	50	108	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	<2.0	10 µg/L	48.4	10	95	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3461161)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	<1.0	5 µg/L	65.7	58.6	119	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	<1.0	5 µg/L	78.6	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	<1.0	5 µg/L	73.1	62.2	113	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	<1.0	5 µg/L	79.6	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	<1.0	5 µg/L	93.0	62.6	116	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	<1.0	5 µg/L	74.2	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	<1.0	5 µg/L	88.9	63.6	118	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	<1.0	5 µg/L	84.4	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	<1.0	5 µg/L	79.3	64.1	117	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	<1.0	5 µg/L	88.5	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.2	µg/L	<1.0	5 µg/L	76.2	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	<1.0	5 µg/L	94.1	61.7	117	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.5	5 µg/L	90.1	63.3	117	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.2	µg/L	<1.0	5 µg/L	89.4	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	<1.0	5 µg/L	87.0	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	<1.0	5 µg/L	82.7	59.1	118	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3461161) - continued</b>									
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3463039)</b>									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	<1.0	5 µg/L	73.5	58.6	119	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	<1.0	5 µg/L	88.7	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	<1.0	5 µg/L	84.2	62.2	113	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	<1.0	5 µg/L	93.0	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	<1.0	5 µg/L	90.7	62.6	116	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	<1.0	5 µg/L	88.4	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	<1.0	5 µg/L	93.7	63.6	118	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	<1.0	5 µg/L	90.0	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	<1.0	5 µg/L	87.9	64.1	117	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	<1.0	5 µg/L	92.3	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.2	µg/L	<1.0	5 µg/L	87.7	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	<1.0	5 µg/L	96.1	61.7	117	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.5	5 µg/L	94.1	63.3	117	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	<1.0	5 µg/L	86.7	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	<1.0	5 µg/L	84.0	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	<1.0	5 µg/L	80.8	59.1	118	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461160)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	87.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	107	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	86.0	62	120	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461328)</b>									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	107	75	127	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3463038)</b>									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	75.8	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	88.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	82.3	62	120	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461160)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.1	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	106	73.9	138	
EP071: >C34 - C40 Fraction	----	50	µg/L	<100	1500 µg/L	81.5	67	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461328)</b>									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	110	75	127	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3463038)</b>									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	77.2	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	87.6	73.9	138	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3463038) - continued</b>								
EP071: >C34 - C40 Fraction	----	50	µg/L	<100	1500 µg/L	79.7	67	127
<b>EP080: BTEXN (QCLot: 3461328)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.6	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	109	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	110	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461206)</b>								
ES1411769-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.4	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461206)</b>								
ES1411769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	97.9	70	130	
<b>EP080: BTEXN (QCLot: 3461206)</b>								
ES1411769-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.1	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.8	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	71.6	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.4	70	130	
EP080: Naphthalene	91-20-3	2.5 mg/kg	75.4	70	130			

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3461353)</b>							
ES1411772-003	VB_MW03	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	114	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	108	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	109	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	101	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3461353) - continued</b>							
ES1411772-003	VB_MW03	EG020A-F: Nickel	7440-02-0	0.2 mg/L	103	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	108	70	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 3461346)</b>							
ES1411593-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	117	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	120	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	114	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	118	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	111	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	111	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	118	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3461351)</b>							
ES1411772-003	VB_MW03	EG035F: Mercury	7439-97-6	0.0100 mg/L	97.2	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3463087)</b>							
ES1411772-011	R01_270514	EG035T: Mercury	7439-97-6	0.010 mg/L	95.6	70	130
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3461327)</b>							
ES1411701-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.4	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	98.3	70	130
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3461327)</b>							
ES1411701-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	108	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461328)</b>							
ES1411701-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461328)</b>							
ES1411701-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	109	70	130
<b>EP080: BTEXN (QCLot: 3461328)</b>							
ES1411701-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.9	70	130
		EP080: Toluene	108-88-3	25 µg/L	99.4	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	70	130
		EP080: ortho-Xylene	106-42-3	25 µg/L	102	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	116	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461206)</b>											
ES1411769-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.4	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461206)</b>											
ES1411769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	97.9	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3461206)</b>											
ES1411769-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	73.1	----	70	130	----	----	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	71.6	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	74.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.4	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		2.5 mg/kg	75.4	----	70	130	----	----	

Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit	
<b>EP074E: Halogenated Aliphatic Compounds (QCLot: 3461327)</b>											
ES1411701-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.4	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	98.3	----	70	130	----	----	
<b>EP074F: Halogenated Aromatic Compounds (QCLot: 3461327)</b>											
ES1411701-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	108	----	70	130	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3461328)</b>											
ES1411701-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	----	70	130	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3461328)</b>											
ES1411701-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	109	----	70	130	----	----	
<b>EP080: BTEXN (QCLot: 3461328)</b>											
ES1411701-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.9	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	99.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	----	70	130	----	----	
	EP080: Naphthalene	91-20-3		25 µg/L	116	----	70	130	----	----	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3461346)</b>											
ES1411593-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	117	----	70	130	----	----	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	120	----	70	130	----	----	
		EG020A-T: Chromium	7440-47-3	1 mg/L	114	----	70	130	----	----	
		EG020A-T: Copper	7440-50-8	1 mg/L	118	----	70	130	----	----	
		EG020A-T: Lead	7439-92-1	1 mg/L	111	----	70	130	----	----	





Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG020T: Total Metals by ICP-MS (QCLot: 3461346) - continued</b>										
ES1411593-001	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	111	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	118	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3461351)</b>										
ES1411772-003	VB_MW03	EG035F: Mercury	7439-97-6	0.0100 mg/L	97.2	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3461353)</b>										
ES1411772-003	VB_MW03	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	114	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	109	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	101	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	108	----	70	130	----	----
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3463087)</b>										
ES1411772-011	R01_270514	EG035T: Mercury	7439-97-6	0.010 mg/L	95.6	----	70	130	----	----



## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1411772</b>	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAY-2014
C-O-C number	: ----	Issue Date	: 30-MAY-2014
Sampler	: SB, JE	No. of samples received	: 10
Order number	: 0237747	No. of samples analysed	: 7
Quote number	: EN/009/14		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
Soil Glass Jar - Unpreserved (EP080) TS, TSC1	TB, 27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	29-MAY-2014	10-JUN-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>							
Soil Glass Jar - Unpreserved (EP080) TS, TSC1	TB, 27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	29-MAY-2014	10-JUN-2014	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VB_MW03	27-MAY-2014	---	23-NOV-2014	----	29-MAY-2014	23-NOV-2014	✓
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_270514	27-MAY-2014	28-MAY-2014	23-NOV-2014	✓	29-MAY-2014	23-NOV-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VB_MW03	27-MAY-2014	---	24-JUN-2014	----	28-MAY-2014	24-JUN-2014	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_270514	27-MAY-2014	----	----	----	29-MAY-2014	24-JUN-2014	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>							
Amber Glass Bottle - Unpreserved (EP066) D01_270514,	VB_MW03 27-MAY-2014	28-MAY-2014	03-JUN-2014	✓	29-MAY-2014	07-JUL-2014	✓
Amber Glass Bottle - Unpreserved (EP066) R01_270514	27-MAY-2014	29-MAY-2014	03-JUN-2014	✓	29-MAY-2014	08-JUL-2014	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
Amber Glass Bottle - Unpreserved (EP071) D01_270514,	VB_MW03 27-MAY-2014	28-MAY-2014	03-JUN-2014	✓	29-MAY-2014	07-JUL-2014	✓
Amber Glass Bottle - Unpreserved (EP071) R01_270514	27-MAY-2014	29-MAY-2014	03-JUN-2014	✓	29-MAY-2014	08-JUL-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP074D: Fumigants</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074E: Halogenated Aliphatic Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074F: Halogenated Aromatic Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074A: Monocyclic Aromatic Hydrocarbons</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074H: Naphthalene</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074B: Oxygenated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074C: Sulfonated Compounds</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP074G: Trihalomethanes</b>								
Amber VOC Vial - Sulfuric Acid (EP074) D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP075(SIM)A: Phenolic Compounds</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) D01_270514,	VB_MW03	27-MAY-2014	28-MAY-2014	03-JUN-2014	✓	29-MAY-2014	07-JUL-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_270514		27-MAY-2014	29-MAY-2014	03-JUN-2014	✓	29-MAY-2014	08-JUL-2014	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
Amber Glass Bottle - Unpreserved (EP075(SIM)) D01_270514,	VB_MW03	27-MAY-2014	28-MAY-2014	03-JUN-2014	✓	29-MAY-2014	07-JUL-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) R01_270514		27-MAY-2014	29-MAY-2014	03-JUN-2014	✓	29-MAY-2014	08-JUL-2014	✓



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> VP_MW01, VB_MW03,	D01_270514, R01_270514	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> D01_270514, R01_270514	VB_MW03,	27-MAY-2014	28-MAY-2014	10-JUN-2014	✓	28-MAY-2014	10-JUN-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
TPH Volatiles/BTEX	EP080	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	10	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	10	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.





## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EP074D: Fumigants	4139691-002	----	2,2-Dichloropropane	594-20-7	120 %	61-119%	Recovery greater than upper control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

### Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** S. Brooker / J. Ewing  
**COC emailed to ALS? (YES / NO):** YES  
**EDD FORMAT (or default):** ERM  
**Email Reports to (will default to PM if no other addresses are listed):** symphony.delacoste@erm.com  
**Email Invoice to (will default to PM if no other addresses are listed):** symphony.delacoste@erm.com

**CONTACT PH:** 0401 776 290  
**SAMPLER MOBILE:** . . .  
**RELIQUISHED BY:** . . .  
**DATE/TIME:** . . .

**TURNAROUND REQUIREMENTS:**  Standard TAT (Last due date):  
 Non Standard or urgent TAT (Last due date): 2

**ALS QUOTE NO.:** . . .  
**COC SEQUENCE NUMBER (Chck):**  
 1 2 3 4 5 6 7  
 OR: 1 2 3 4 5 6 7

**RECEIVED BY:** Remy  
**DATE/TIME:** 27/5/14 19:00

**FOR LABORATORY USE ONLY (CHCK):**  
 Client Satisfied?  YES  NO  
 Free of charge?  YES  NO  
 Sample returned in good condition?  YES  NO  
 Report received in good time?  YES  NO  
 Overall?  YES  NO

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED (Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).)										Additional Information				
						8 METALS (W-2)	13 METALS (W-3) + B, Mo, Tl, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace Metals	Hold	TRM					
1	VP_MW01	27/5/14	W																	
2	DOL_270514		W			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	DOR_270514		W			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	VB_MW03		W			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	VO_SW01		W																	
6	ASH_01	27/5/14	W																	
7	ASH_02		W																	
8	TS		W																	
9	TB		W																	
10	ACM1		W																	
11	TRC		W																	
					<b>TOTAL</b>															

Environmental Division  
 Sydney  
 Work Order  
**ES1411772**

Barcode: [Barcode]  
 Telephone: +61 2 8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; A1 = Airtight Unpreserved Plastic; V = VOA Via HCl Preserved; VB = VOA Via Sodium Bisphosphate Preserved; VS = VOA Via Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottles; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass.

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Soluble Solids; B = Unpreserved Bag.

(11) K01-27/5/14 (12) V0-SS01-27/5/14

DADEL ALICE 21 Burne Road, Porella SA 5095  
 Ph: 08 833 0660 E: dadelalice@alishlab.com  
 DORIS BAILE 32 Stone Street, Sturtion QLD 4053  
 Ph: 07 3243 7222 E: doris.baile@alishlab.com  
 DELIA ADRIANNE 46 Calverton Drive, Clifton QLD 4680  
 Ph: 07 7471 5000 E: gunderson@alishlab.com

DANAKAY 78 Harbour Road Mackay QLD 4740  
 Ph: 07 4944 0177 E: mackay@alishlab.com  
 DANIEL BOURNE 24 Westall Road Springvale VIC 3171  
 Ph: 03 8649 9600 E: samples.melbourne@alishlab.com  
 DANIEL GEE 27 Swinley Road, Mulgrave NSW 2280  
 Ph: 02 6372 6735 E: mulgrave\_m@alishlab.com

DNEWCASTLE 5 Ross Gum Road Warbrook NSW 2304  
 Ph: 02 4568 9433 E: samples.newcastle@alishlab.com  
 DNOORA 413 Geary Place North, Noora NSW 2541  
 Ph: 02 4423 2083 E: noora@alishlab.com  
 DPERTH 10 Hood Way Midvale WA 6009  
 Ph: 08 9239 7855 E: samples.perth@alishlab.com

DSPYKEY 27728 Woodville Road Springfield NSW 2164  
 Ph: 02 8747 4444 E: samples.springfield@alishlab.com  
 DUTOMNSVILLE 15-15 Derrina Court, QLD 4818  
 Ph: 07 4769 0600 E: toowoomba.environment@alishlab.com  
 DMOLONGONG 99 Kenny Street, Wodonga NSW 2590  
 Ph: 02 4225 3125 E: perkenzie@alishlab.com

CLIENT: ERM OFFICE: PYRMONT PROJECT: VALES POINT POWER STATION ORDER NUMBER: 0237747 SITE MANAGER: JOHN EWING CONTACT PH: 0401 776 290

SAMPLERS: *S. Brooker / J. Ewing* SAMPLER MOBILE: EDD FORMAT (or default):  
 Email Reports to (will default to PM if no other addresses are listed): symphony.delacoosa@erm.com  
 Email Invoice to (will default to PM if no other addresses are listed): symphony.delacoosa@erm.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:  Standard TAT (List due date)  Non Standard or Urgent TAT (List due date) *2*

ALS QUOTE NO.: COC SEQUENCE NUMBER (Circle) RECEIVED BY: *Reinwell* DATE/TIME: *27/5/14 19:00*

RELINQUISHED BY: DATE/TIME: RELINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	8 METALS (W-2)	13 METALS (W-3) + B, Mo, Ti, Se	TPH/BTEX/PAH/PHENOLS (W-24)	VOC	NT-1 (Ca, Mg, Na, K)	NT-2 (Alk, SO4, Cl)	PFOS/PFOA	Ultra Trace Metals	Hold	TRH	Additional Information
1	VP_MW01	27/5/14	W			X										
2	DO1_270514		W			X										
3	DO2_270514		W			X										
4	VO_SW01		W			X										
5	ASH_O1	27/5/14	W			X										
6	ASH_O2		W			X										
7	TS		W			X										
8	TB		W			X										
9	ACM1		W			X										
10	TSC2		W			X										
TOTAL																

Environmental Division  
 Sydney  
 Work Order  
**ES1411772**

Barcode: [Barcode]  
 Telephone: +61-2-8784 8555

**Subcon / Laboratory Split VVO**  
 Lab / Analysis: *Asbestos / Asbestos*  
 Organised By / Date: *ENV/col - 002 - 270514*  
 Requisitioned By / Date: *ENV/col - 002 - 270514*

Water Containment Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; Airflight Unpreserved Plastic; V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Speciation bottle; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Substrate Solids; B = Unpreserved Bag.

*(11) K01-27/5/14*  
*(12) VO-SS01-27/5/14*  
*28.5/14 Spoke to John, sample VO-SS01 on hold, sample DO1 to be analysed same as VB-MW03. DR*

*2 days TAT*  
*30.5.14*  
*Phalok*

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1411912</b> <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800 <b>Project</b> : VALES POINT POWER STATION <b>Order number</b> : 0237747 <b>C-O-C number</b> : ---- <b>Sampler</b> : SB, JE <b>Site</b> : ----  <b>Quote number</b> : EN/009/14	<b>Page</b> : 1 of 3  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAY-2014 <b>Issue Date</b> : 30-MAY-2014  <b>No. of samples received</b> : 1 <b>No. of samples analysed</b> : 1
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**VO\_SW01**

----

----

----

----

Client sampling date / time

27-MAY-2014 15:00

----

----

----

----

Compound	CAS Number	LOR	Unit	ES1411912-001	----	----	----	----
----------	------------	-----	------	---------------	------	------	------	------

### EG020F: Dissolved Metals by ICP-MS

<b>Arsenic</b>	7440-38-2	0.001	mg/L	<b>0.001</b>	----	----	----	----
<b>Boron</b>	7440-42-8	0.05	mg/L	<b>0.35</b>	----	----	----	----
<b>Barium</b>	7440-39-3	0.001	mg/L	<b>0.052</b>	----	----	----	----
<b>Beryllium</b>	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
<b>Cadmium</b>	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
<b>Cobalt</b>	7440-48-4	0.001	mg/L	<b>0.002</b>	----	----	----	----
<b>Chromium</b>	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
<b>Copper</b>	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
<b>Manganese</b>	7439-96-5	0.001	mg/L	<b>0.547</b>	----	----	----	----
<b>Nickel</b>	7440-02-0	0.001	mg/L	<b>0.002</b>	----	----	----	----
<b>Lead</b>	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
<b>Selenium</b>	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
<b>Vanadium</b>	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
<b>Zinc</b>	7440-66-6	0.005	mg/L	<b>0.033</b>	----	----	----	----

### EG035F: Dissolved Mercury by FIMS

<b>Mercury</b>	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
----------------	-----------	--------	------	---------	------	------	------	------

## QUALITY CONTROL REPORT

<b>Work Order</b> : <b>ES1411912</b>  <b>Client</b> : <b>ENVIRO RESOURCES MANAGEMENT</b> <b>Contact</b> : JOHN EWING <b>Address</b> : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007  <b>E-mail</b> : john.ewing@erm.com <b>Telephone</b> : +61 02 8584 8888 <b>Facsimile</b> : +61 02 8584 8800  <b>Project</b> : VALES POINT POWER STATION <b>Site</b> : ---- <b>C-O-C number</b> : ---- <b>Sampler</b> : SB, JE <b>Order number</b> : 0237747  <b>Quote number</b> : EN/009/14	<b>Page</b> : 1 of 5  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Barbara Hanna <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : Barbara.Hanna@alsglobal.com <b>Telephone</b> : +61 2 8784 8555 <b>Facsimile</b> : +61 2 8784 8555  <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 27-MAY-2014 <b>Issue Date</b> : 30-MAY-2014  <b>No. of samples received</b> : 1 <b>No. of samples analysed</b> : 1
--	---

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited  
Laboratory 825  
  
Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Shobhna Chandra	Metals Coordinator	Sydney Inorganics





### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3462990)</b>									
ES1411851-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.599	0.602	0.6	0% - 20%
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.367	0.361	1.6	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.089	0.090	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.016	0.017	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.019	0.018	5.8	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.05	0.06	0.0	No Limit		
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3462991)</b>									
ES1411912-001	VO_SW01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3462990)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.0	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	93.2	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	80	112	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.4	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.2	81	113	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	93.8	80	114	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.2	79	113	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.1	81	113	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.7	81	113	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	81	115	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	114	73	125	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.8	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	102	73	123	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3462991)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	94.5	78	114	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						MS	Low
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3462990)</b>							
ES1411851-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	110	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	116	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	116	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	108	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	108	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	106	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	100	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	104	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	104	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3462990) - continued</b>							
ES1411851-003	Anonymous	EG020A-F: Vanadium	7440-62-2	0.2 mg/L	111	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	112	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3462991)</b>							
ES1411912-001	VO_SW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	88.7	70	130

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3462990)</b>										
ES1411851-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	110	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	116	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	116	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	106	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	111	----	70	130	----	----
EG020A-F: Zinc	7440-66-6	0.2 mg/L	112	----	70	130	----	----		
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3462991)</b>										
ES1411912-001	VO_SW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	88.7	----	70	130	----	----

## INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1411912</b>	Page	: 1 of 5
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: JOHN EWING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.ewing@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: VALES POINT POWER STATION	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 27-MAY-2014
C-O-C number	: ----	Issue Date	: 30-MAY-2014
Sampler	: SB, JE	No. of samples received	: 1
Order number	: 0237747	No. of samples analysed	: 1
Quote number	: EN/009/14		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) VO_SW01	27-MAY-2014	---	23-NOV-2014	----	29-MAY-2014	23-NOV-2014	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) VO_SW01	27-MAY-2014	---	24-JUN-2014	----	29-MAY-2014	24-JUN-2014	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	33.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	1	100.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	33.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)





---

## Summary of Outliers

### **Outliers : Quality Control Samples**

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### ***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes***

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

#### ***Regular Sample Surrogates***

- For all regular sample matrices, no surrogate recovery outliers occur.

### **Outliers : Analysis Holding Time Compliance**

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

### **Outliers : Frequency of Quality Control Samples**

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.
-





**CERTIFICATE OF ANALYSIS**

**107626**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, R Pascoe

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 water
Date samples received / completed instructions received	03/04/14 / 03/04/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date:	10/04/14 / 9/04/14
Date of Preliminary Report:	None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	107626-1
Your Reference	-----	T01-010414 -SB
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	04/04/2014
Date analysed	-	06/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	105
Surrogate toluene-d8	%	101
Surrogate 4-BFB	%	99

svTRH (C10-C40) in Water		
Our Reference:	UNITS	107626-1
Your Reference	-----	T01-010414 -SB
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	04/04/2014
Date analysed	-	07/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	<50
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	<100
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	<100
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	<100
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	<100
Surrogate o-Terphenyl	%	67

PAHs in Water Our Reference: Your Reference	UNITS -----	107626-1 T01-010414 -SB
Date Sampled Type of sample	-----	01/04/2014 water
Date extracted	-	04/04/2014
Date analysed	-	04/04/2014
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	61

Total Phenolics in Water		
Our Reference:	UNITS	107626-1
Your Reference	-----	T01-010414 -SB
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	03/04/2014
Date analysed	-	03/04/2014
Total Phenolics (as Phenol)	mg/L	<0.05



HM in water - dissolved		
Our Reference:	UNITS	107626-1
Your Reference	-----	T01-010414 -SB
Date Sampled	-----	01/04/2014
Type of sample		water
Date prepared	-	04/04/2014
Date analysed	-	04/04/2014
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	3
Zinc-Dissolved	µg/L	21

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Date analysed	-			06/04/2014	[NT]	[NT]	LCS-W1	06/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	89%
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	89%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	91%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	86%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	87%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	87%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	96	[NT]	[NT]	LCS-W1	103%
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	LCS-W1	102%
Surrogate 4-BFB	%		Org-016	103	[NT]	[NT]	LCS-W1	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Date analysed	-			07/04/2014	[NT]	[NT]	LCS-W1	07/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	67%
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	81%
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	67%
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	81%
Surrogate o-Terphenyl	%		Org-003	62	[NT]	[NT]	LCS-W1	72%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Date analysed	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	75%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	83%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	79%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	82%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	77%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	60	[NT]	[NT]	LCS-W1	77%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			03/04/2014	[NT]	[NT]	LCS-W1	03/04/2014
Date analysed	-			03/04/2014	[NT]	[NT]	LCS-W1	03/04/2014
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Date analysed	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	96%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	101%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	100%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	92%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	90%

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                      RPD: Relative Percent Difference      NA: Test not required  
 <: Less than                                  >: Greater than                              LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: John Ewing, R Pascoe

### **Sample log in details:**

Your reference:

**0237747, Vales Point Power Station**

Envirolab Reference:

**107626**

Date received:

**03/04/14**

Date results expected to be reported:

**10/04/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 water
Turnaround time requested:	Standard
Temperature on receipt (°C)	9.0
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

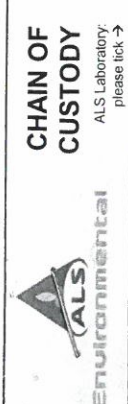
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**CHAIN OF CUSTODY**

LIADLAIDE 21 Durma Road Pootra SA 5005  
Ph: 08 8359 0890 E: [eridiane@alsglobal.com](mailto:eridiane@alsglobal.com)  
LUBRISBANE 32 Shand Street Stafford QLD 4053  
Ph: 07 3243 7322 E: [samples.lubrisbane@alsglobal.com](mailto:samples.lubrisbane@alsglobal.com)  
LIGLADSTONE 46 Colleenmah Drive Clinton QLD 4680  
Ph: 07 7471 5600 E: [gladstone@alsglobal.com](mailto:gladstone@alsglobal.com)

JIMAGAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4644 0177 E: [mackay@alsglobal.com](mailto:mackay@alsglobal.com)  
CLIVE BOURNE 24 Westal Road Sperryvale VIC 3171  
Ph: 03 9549 8606 E: [sperryvale@alsglobal.com](mailto:sperryvale@alsglobal.com)  
LIMULGOEE 27 Sully Rd Mulgoe NSW 2560  
Ph: 02 6372 6739 E: [mudgee@alsglobal.com](mailto:mudgee@alsglobal.com)

CHIEWCASTLE 5 Rose Gum Road Warbrook NSW 2304  
Ph: 02 4668 9433 E: [samples.newcastle@alsglobal.com](mailto:samples.newcastle@alsglobal.com)  
JUNOMPA 4/13 Geary Place North Nowra NSW 2541  
Ph: 024423 2083 E: [nowra@alsglobal.com](mailto:nowra@alsglobal.com)  
JPERITH 10 Hood Way Malaga WA 6000  
Ph: 08 9209 7655 E: [samples.perth@alsglobal.com](mailto:samples.perth@alsglobal.com)

LSYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555 E: [samples.sydney@alsglobal.com](mailto:samples.sydney@alsglobal.com)  
LTONNSVILLE 14-15 Deema Court Bohle QLD 4818  
Ph: 07 4796 0600 E: [townsville.environmental@alsglobal.com](mailto:townsville.environmental@alsglobal.com)  
LWOLLONGONG 99 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 3125 E: [portkenbela@alsglobal.com](mailto:portkenbela@alsglobal.com)

**CLIENT:** ERM  
**OFFICE:** PYRMONT  
**PROJECT:** VALES POINT POWER STATION  
**ORDER NUMBER:** 0237747  
**SITE MANAGER:** JOHN EWING  
**SAMPLER:** K. McLean  
**COC emailed to ALS?** (YES / NO)  
**EDD FORMAT (or default):** [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)  
**Email Reports to (will default to PM if no other addresses are listed):** [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)  
**Email invoice to (will default to PM if no other addresses are listed):** [symphony.deltacoast@erm.com](mailto:symphony.deltacoast@erm.com)

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**FOR LABORATORY USE ONLY (Circle)**  
Custody Seal Intact?  Yes  No  
Free Ice / Frozen Ice bricks present upon receipt?  Yes  No  
Random Sample Temperature on Receipt: 30 °C  
Other comment:

**RECEIVED BY:** K. McLean  
**DATE/TIME:** 02/4/14 19:00  
**RELINQUISHED BY:** PT  
**DATE/TIME:** 4/4/14 14:30

**RECEIVED BY:** PT  
**DATE/TIME:** 4/4/14 14:30

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (copies below)	Organised By / Date: EnviroLab	Relinquished By / Date: TCI	Container / Counter:	WO No:	Attach By PO / Internal Sheet:	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
1	VL-mw02	11/4/14	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	Comments on likely contaminant levels, dilutions or samples requiring specific QC analysis etc.
2	VL-mw01	12:07	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	
3	VL-mw03	13:14	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	
4	VH-X-mw06	14:51	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	
5	VH-mw08	16:04	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	
6	001-010414-KM	17:11	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	Comments on likely contaminant levels, dilutions or samples requiring specific QC analysis etc. Ultratrace metals to be put on hold pending results of metals (8). Please for 701-010414-KM to EnviroLab
7	T01-010414-KM	14:51	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	
7	VL-mw03	14:51	w							TOTAL	8 METALS (W-2) X 13 METALS (W-3) + B, Mo, Ti, Se X PHENOLS (W-24) X VOC X PCB X NT-1 (Ca, Mg, Na, K) X NT-2 (Alk, SO4, Cl) X PFOs/PFOA X Ultra Trace PAH X Ultra Trace Metals X	

Environmental Division  
Sydney  
Work Order  
**ES1407299**



Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Ster

Telephone : +61-2-8784 8555



**CERTIFICATE OF ANALYSIS**

**107703**

**Client:**

**Environmental Resources Management Australia**

Locked Bag 24

Broadway

NSW 2007

**Attention:** John Ewing, K McLean

**Sample log in details:**

Your Reference:	<b><u>0237747, Vales Point Power Station</u></b>
No. of samples:	1 water
Date samples received / completed instructions received	04/04/14 / 04/04/14

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date: 11/04/14 / 10/04/14

Date of Preliminary Report: None Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



---

Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	107703-1
Your Reference	-----	T01-010414 -KM
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	04/04/2014
Date analysed	-	06/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	<10
TRHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	99
Surrogate toluene-d8	%	95
Surrogate 4-BFB	%	90

svTRH (C10-C40) in Water		
Our Reference:	UNITS	107703-1
Your Reference	-----	T01-010414 -KM
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	07/04/2014
Date analysed	-	08/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	<50
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	<100
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	<100
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	<100
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	<100
Surrogate o-Terphenyl	%	83

PAHs in Water Our Reference: Your Reference	UNITS -----	107703-1 T01-010414 -KM
Date Sampled Type of sample	-----	01/04/2014 water
Date extracted	-	07/04/2014
Date analysed	-	07/04/2014
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	73

Total Phenolics in Water		
Our Reference:	UNITS	107703-1
Your Reference	-----	T01-010414 -KM
Date Sampled	-----	01/04/2014
Type of sample		water
Date extracted	-	08/04/2014
Date analysed	-	08/04/2014
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference:	UNITS	107703-1
Your Reference	-----	T01-010414 -KM
Date Sampled	-----	01/04/2014
Type of sample		water
Date prepared	-	09/04/2014
Date analysed	-	09/04/2014
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.2
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	22
Lead-Dissolved	µg/L	20
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	44
Zinc-Dissolved	µg/L	120

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			04/04/2014	[NT]	[NT]	LCS-W1	04/04/2014
Date analysed	-			06/04/2014	[NT]	[NT]	LCS-W1	06/04/2014
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	110%
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	110%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	109%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	112%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	112%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	110%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	109%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	108	[NT]	[NT]	LCS-W1	101%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	102%
Surrogate 4-BFB	%		Org-016	102	[NT]	[NT]	LCS-W1	97%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			07/04/2014	[NT]	[NT]	LCS-W1	07/04/2014
Date analysed	-			08/04/2014	[NT]	[NT]	LCS-W1	08/04/2014
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	62%
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	82%
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	85%
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	62%
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	82%
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	85%
Surrogate o-Terphenyl	%		Org-003	71	[NT]	[NT]	LCS-W1	68%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			07/04/2014	[NT]	[NT]	LCS-W1	07/04/2014
Date analysed	-			07/04/2014	[NT]	[NT]	LCS-W1	07/04/2014
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	65%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	73%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	70%



**Client Reference: 0237747, Vales Point Power Station**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	69%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	72%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	67%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	76%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	62	[NT]	[NT]	LCS-W1	68%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			08/04/2014	[NT]	[NT]	LCS-W1	08/04/2014
Date analysed	-			08/04/2014	[NT]	[NT]	LCS-W1	08/04/2014
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			09/04/2014	107703-1	09/04/2014    09/04/2014	LCS-W2	07/04/2014
Date analysed	-			09/04/2014	107703-1	09/04/2014    09/04/2014	LCS-W2	07/04/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	<1    <1	LCS-W2	106%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	107703-1	0.2    0.2    RPD: 0	LCS-W2	104%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	<1    <1	LCS-W2	106%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	22    21    RPD: 5	LCS-W2	107%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	20    19    RPD: 5	LCS-W2	110%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	107703-1	<0.05    <0.05	LCS-W2	100%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	44    43    RPD: 2	LCS-W2	101%

**Client Reference: 0237747, Vales Point Power Station**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	107703-1	120    110    RPD: 9	LCS-W2	101%

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test      PQL: Practical Quantitation Limit      NT: Not tested  
 NA: Test not required                          RPD: Relative Percent Difference      NA: Test not required  
 <: Less than    >: Greater than                                  LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.  
**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.  
**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.  
**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.  
**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.  
 Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.  
 Spikes for Physical and Aggregate Tests are not applicable.  
 For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.  
 Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



**Envirolab Services Pty Ltd**  
ABN 37 112 535 645  
12 Ashley St Chatswood NSW 2067  
ph 02 9910 6200 fax 02 9910 6201  
enquiries@envirolabservices.com.au  
www.envirolabservices.com.au

## **SAMPLE RECEIPT ADVICE**

### **Client:**

Environmental Resources Management Australia  
Locked Bag 24  
Broadway NSW 2007

ph: 02 8584 8888  
Fax: 02 8584 8800

Attention: John Ewing, K McLean

### **Sample log in details:**

Your reference:	<b>0237747, Vales Point Power Station</b>
Envirolab Reference:	<b>107703</b>
Date received:	04/04/14
Date results expected to be reported:	<b>11/04/14</b>

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 water
Turnaround time requested:	Standard
Temperature on receipt (°C)	5.6
Cooling Method:	Ice
Sampling Date Provided:	YES

### **Comments:**

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

### **Contact details:**

Please direct any queries to Aileen Hie or Jacinta Hurst  
ph: 02 9910 6200 fax: 02 9910 6201  
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Annex I

## EIL and UCL Calculations

**AEC VN**

**ProUCL 95% UCL Calculation for Zinc in Soil <1 mbgl**

UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File                      WorkSheet.xls  
 Full Precision                OFF  
 Confidence Coefficient        95%  
 Number of Bootstrap Operations   2000

Data

General Statistics

Total Number of Observations	18	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	11
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	6	Minimum Non-Detect	5
Maximum Detect	53	Maximum Non-Detect	5
Variance Detects	255.1	Percent Non-Detects	61.11%
Mean Detects	21.14	SD Detects	15.97
Median Detects	15	CV Detects	0.755
Skewness Detects	1.506	Kurtosis Detects	2.6
Mean of Logged Detects	2.819	SD of Logged Detects	0.742

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.854	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.238	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	11.28	Standard Error of Mean	3.086
SD	12.12	95% KM (BCA) UCL	16.44
95% KM (t) UCL	16.65	95% KM (Percentile Bootstrap) UCL	16.56
95% KM (z) UCL	16.35	95% KM Bootstrap t UCL	20.73
90% KM Chebyshev UCL	20.54	95% KM Chebyshev UCL	24.73
97.5% KM Chebyshev UCL	30.55	99% KM Chebyshev UCL	41.99

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.263	Anderson-Darling GOF Test
5% A-D Critical Value	0.714	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.176	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.315	Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.307	k star (bias corrected MLE)	1.414
Theta hat (MLE)	9.163	Theta star (bias corrected MLE)	14.96
nu hat (MLE)	32.3	nu star (bias corrected)	19.79
MLE Mean (bias corrected)	21.14	MLE Sd (bias corrected)	17.78

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.865	nu hat (KM)	31.15
Approximate Chi Square Value (31.15, $\alpha$ )	19.4	Adjusted Chi Square Value (31.15, $\beta$ )	18.51
95% Gamma Approximate KM-UCL (use when $n \geq 50$ )	18.11	95% Gamma Adjusted KM-UCL (use when $n < 50$ )	18.98

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	8.228
Maximum	53	Median	0.01
SD	14.23	CV	1.729
k hat (MLE)	0.193	k star (bias corrected MLE)	0.198
Theta hat (MLE)	42.55	Theta star (bias corrected MLE)	41.52
nu hat (MLE)	6.962	nu star (bias corrected)	7.135
MLE Mean (bias corrected)	8.228	MLE Sd (bias corrected)	18.48
		Adjusted Level of Significance ( $\beta$ )	0.0357
Approximate Chi Square Value (7.13, $\alpha$ )	2.245	Adjusted Chi Square Value (7.13, $\beta$ )	1.991
95% Gamma Approximate UCL (use when $n \geq 50$ )	26.15	95% Gamma Adjusted UCL (use when $n < 50$ )	29.49

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.966	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.155	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9.387	Mean in Log Scale	1.292
SD in Original Scale	13.58	SD in Log Scale	1.505
95% t UCL (assumes normality of ROS data)	14.95	95% Percentile Bootstrap UCL	14.97
95% BCA Bootstrap UCL	16.56	95% Bootstrap t UCL	19.02
95% H-UCL (Log ROS)	39.76		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed			
KM Mean (logged)	2.08	95% H-UCL (KM -Log)	15.6
KM SD (logged)	0.729	95% Critical H Value (KM-Log)	2.273
KM Standard Error of Mean (logged)	0.186		

DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	9.75	Mean in Log Scale	1.656
SD in Original Scale	13.32	SD in Log Scale	1.051
95% t UCL (Assumes normality)	15.21	95% H-Stat UCL	18.2
DL/2 is not a recommended method, provided for comparisons and historical reasons			

Nonparametric Distribution Free UCL Statistics  
 Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use			
95% KM (t) UCL	16.65	95% KM (Percentile Bootstrap) UCL	16.56

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

<b>Inputs</b>	
<b>Select contaminant from list below</b>	
<b>As</b>	
<b>Below needed to calculate fresh and aged ACLs</b>	
<b>Below needed to calculate fresh and aged ABCs</b>	
<b>or for fresh ABCs only</b>	
<b>or for aged ABCs only</b>	

<b>Outputs</b>		
<b>Land use</b>	<b>Arsenic generic EILs</b>	
	<small>(mg contaminant/kg dry soil)</small>	
	<b>Fresh</b>	<b>Aged</b>
<b>National parks and areas of high conservation value</b>	<b>20</b>	<b>40</b>
<b>Urban residential and open public spaces</b>	<b>50</b>	<b>100</b>
<b>Commercial and industrial</b>	<b>80</b>	<b>160</b>



<b>Inputs</b>	
<b>Select contaminant from list below</b>	
Cr_III	
Below needed to calculate fresh and aged ACLs	
<b>Enter % clay (values from 0 to 100%)</b>	
10	
Below needed to calculate fresh and aged ABCs	
<b>Measured background concentration (mg/kg). Leave blank if no measured value</b>	
8	
or for fresh ABCs only	
<b>Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration</b>	
7	
or for aged ABCs only	
<b>Enter State (or closest State)</b>	
NSW	
<b>Enter traffic volume (high or low)</b>	
low	

<b>Outputs</b>		
<b>Land use</b>	<b>Cr III soil-specific EILs</b>	
	(mg contaminant/kg dry soil)	
	<b>Fresh</b>	<b>Aged</b>
National parks and areas of high conservation value	60	140
Urban residential and open public spaces	170	410
Commercial and industrial	270	670

Inputs	
Select contaminant from list below	
Cu	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
2.7	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
9	
Enter organic carbon content (%OC) (values from 0 to 50%)	
1	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
3.7	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cu soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	15	20
Urban residential and open public spaces	30	50
Commercial and industrial	40	75



<b>Inputs</b>	
<b>Select contaminant from list below</b>	
<b>Naphthalene</b>	
<b>Below needed to calculate fresh and aged ACLs</b>	
<b>Below needed to calculate fresh and aged ABCs</b>	
<b>or for fresh ABCs only</b>	
<b>or for aged ABCs only</b>	

<b>Outputs</b>		
Land use	Naphthalene generic EILs	
	(mg contaminant/kg dry soil)	
	<b>Fresh</b>	<b>Aged</b>
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

Inputs	
Select contaminant from list below	
Ni	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
3.6	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
1.6	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Ni soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	2	4
Urban residential and open public spaces	6	15
Commercial and industrial	10	25



<b>Inputs</b>	
<b>Select contaminant from list below</b>	
<b>Pb</b>	
<b>Below needed to calculate fresh and aged ACLs</b>	
<b>Below needed to calculate fresh and aged ABCs</b>	
<b>or for fresh ABCs only</b>	
<b>or for aged ABCs only</b>	

<b>Outputs</b>		
Land use	Lead generic EILs	
	(mg contaminant/kg dry soil)	
	<b>Fresh</b>	<b>Aged</b>
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

Inputs	
Select contaminant from list below	
Zn	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
2.7	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
9	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
9.9	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Zn soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	25	40
Urban residential and open public spaces	65	150
Commercial and industrial	95	230

Annex J

## Survey Data

## Vales point monitoring wells-Delta Electricity

Job Number: 14/0106 Date of report: 7/04/2014  
 Client: Environmental Resources Management (ERM) Issue: A  
 Site: Vales Point

Date of Survey: 1/04/2014  
 Surveyed: PW  
 Checked: HG

Well ID	MGA Grid Coordinates		RL (AHD)	
	Easting	Northing	Top of PVC pipe level	Ground level
VA-MW01	364359.4	6329884.5	3.10	3.16
VA-MW02	364448.4	6329940.5	2.85	3.03
VA-MW03	364433.1	6329983.4	3.10	3.21
VA-MW04	364391.5	6330065.2	3.29	3.39
VA-MW05	364369.6	6330144.5	3.16	3.31
VA-MW06	364460.6	6330009.7	3.17	3.30
VA-SB01	364332.1	6329866.5	3.18	
VA-SB02	364401.8	6329919.4	3.22	
VA-SB03	364403.9	6330112.5	3.31	
VB-MW01	364135.8	6329790.1	2.83	2.99
VB-MW02	364057.6	6329792.1	2.78	2.86
VB-MW03	363940.5	6329864.7	3.21	3.35
VB-MW05	364126.1	6330011.9	2.81	2.91
VB-SB01	364114.8	6329777.3	2.95	
VB-SB02	364004.2	6329686.4	2.74	
VC-MW01	364153.5	6330044.1	2.93	3.01
VC-MW02	364320.5	6330156.4	2.98	3.09
VC-MW04	364254.8	6330119.2	2.92	2.96
VC-MW05	364274.0	6330132.6	2.79	2.96
VD-MW01	363910.8	6329734.5	2.70	2.77
VD-MW02	363952.7	6329639.9	4.06	3.34
VD-MW03	363962.5	6329686.3	2.72	2.84
VD-MW04	363945.6	6329762.3	2.67	2.81
VD-MW05	363879.9	6329691.9	6.62	6.68
VD-SB01	363963.3	6329657.3	2.79	
VE-MW02	364374.5	6330238.8	1.61	1.69
VE-MW03	364471.7	6330307.4	1.78	1.07
VF-MW01	364383.1	6330200.9	2.43	2.52
VF-MW02	364369.9	6330185.7	3.15	3.11
VF-MW03	364389.3	6330196.8	2.77	2.95
VG-MW01	364411.7	6329858.1	16.55	16.65
VG-MW02	364325.0	6329785.5	16.64	16.00
VG-MW03	364389.6	6329784.9	17.61	17.72
VG-MW04	364374.2	6329744.3	17.93	18.03
VHX-MW01	363997.2	6329760.8	2.93	3.03
VHX-MW02	363985.6	6329752.7	2.60	2.79
VHX-MW03	363990.8	6329746.0	2.76	2.84
VHX-MW04	364006.7	6329752.2	2.77	2.85
VHX-MW05	364002.7	6329764.7	2.85	2.92
VHX-MW06	363986.8	6329772.0	2.87	2.96
VHX-MW07	363966.9	6329758.4	2.80	2.89



VHX-MW08	363967.1	6329765.5	2.79	2.90
VHX-MW09	363960.1	6329771.4	2.80	2.87
VHX-MW10	363955.2	6329762.9	2.80	2.90
VI-MW01	364131.0	6329810.1	2.83	2.93
VI-MW02	364171.8	6329825.6	2.82	3.01
VJ_SB03	363590.1	6329563.2	10.24	
VJ-MW01	364014.3	6329505.0	11.34	10.56
VJ-MW02	363931.0	6329619.5	7.70	7.87
VJ-MW03	363693.8	6329495.3	9.94	9.19
VJ-MW04	363579.9	6329614.3	10.58	9.81
VJ-MW05	363484.4	6329170.1	17.65	16.96
VJ-MW06	363485.7	6329081.5	18.86	18.18
VJ-MW07	363561.7	6329038.0	18.39	17.66
VJ-MW08	363752.1	6328906.4	19.36	18.67
VJ-MW09	363893.8	6329025.2	19.47	18.78
VJ-MW10	363984.1	6329263.6	15.23	14.53
VK-MW01	363525.3	6329492.0	12.74	12.81
VK-MW02	363471.4	6329476.5	13.32	13.47
VK-MW03	363471.9	6329451.8	13.44	13.58
VK-MW04	363517.1	6329439.9	12.89	12.97
VK-MW05	363760.5	6329408.3	13.12	13.17
VK-MW06	363807.3	6329387.5	13.18	13.31
VK-MW07	363770.1	6329343.6	14.28	13.56
VK-SB02	363801.8	6329412.7	12.24	
VL-MW01	363738.4	6330060.6	10.63	10.01
VL-MW02	363796.6	6329971.6	8.29	7.68
VL-MW03	363635.4	6329993.1	13.68	13.10
VM-MW01	364008.9	6329967.7	2.93	3.05
VM-MW03	363965.9	6329927.6	2.84	2.97
VM-MW04	363952.9	6329958.1	2.79	2.97
VN-MW01	360094.3	6330566.3	27.38	26.58
VN-MW02	360108.5	6330692.4	21.38	20.66
VN-MW03	359432.5	6330787.0	31.60	30.93
VN-MW05	359717.0	6331378.2	19.52	18.96
VN-MW06	359141.9	6331464.8	44.85	44.20
VN-MW07	359171.1	6331495.9	46.26	45.61
VN-MW08	359292.7	6331251.5	26.31	25.57
VN-MW09	359335.3	6331210.7	21.46	21.55
VN-MW10	358988.5	6330365.2	33.84	33.24
VN-MW12	359717.2	6331245.9	18.90	18.23
VN-SB01	360131.7	6330653.9	23.90	
VN-SB03	360207.1	6330616.0	27.03	
VO-MW01	362862.0	6329214.7	2.29	1.57
VO-MW02	362656.4	6329015.9	7.03	6.20
VO-MW03	362520.4	6328994.3	6.70	6.00
VO-MW04	362393.1	6329044.8	3.19	2.55
VO-MW05	362177.5	6328855.6	10.72	10.17
VO-MW06	361968.1	6328685.9	13.42	12.81
VO-MW07	361723.7	6328577.5	18.69	18.09
VO-MW08	363673.4	6328193.1	23.35	22.60
VO-MW09	361150.4	6328102.4	35.94	35.38
VO-MW10	361045.7	6327953.8	31.66	30.96
VO-MW11	360396.2	6327957.5	32.72	32.17
VO-MW12	359479.6	6327991.0	11.96	11.19
VO-MW13	359541.2	6327817.9	18.53	17.89
VO-MW14	359856.2	6327476.3	18.36	17.62
VO-MW15	359850.6	6327322.6	18.37	17.64
VO-MW17	362568.2	6326131.8	18.64	18.06
VO-MW18	362942.4	6326867.8	15.64	14.97

VO-MW19	363227.4	6327156.7	19.24	18.48
VO-MW20	361431.3	6328336.4	24.78	24.12
VO-SB03	362391.9	6325943.1	26.97	
VOX-MW01	362235.0	6328967.1	6.94	6.22
VO-XMW02	362862.5	6329211.2	2.80	1.79
VO-XMW03	362798.3	6329049.7	6.14	6.03
VP-MW01	363106.2	6329393.9	16.82	16.15
VP-MW02	363080.9	6329287.2	13.68	12.99
VS-MW01	364035.4	6329989.1	2.99	3.05
VS-MW02	364063.1	6330010.0	2.97	3.07
VS-MW03	364159.7	6330158.3	3.24	3.31
VS-MW04	364137.2	6330188.9	4.40	4.48
VS-MW05	364106.4	6330258.8	3.06	3.19
VT-MW01	364217.0	6329750.3	14.56	14.55
VT-MW03A	364256.7	6329807.7	14.09	
VT-MW03B	364251.7	6329793.6	14.09	14.24
VU-MW01	364768.8	6330185.7	4.68	4.00
VU-MW02	364569.0	6330284.3	5.16	4.45
VU-MW03	364491.4	6330205.1	10.55	10.56
VU-MW04	364612.2	6330095.6	9.19	8.50
VU-MW05	364553.5	6330074.7	11.10	10.41
VU-MW06	364614.7	6329934.8	9.46	9.55
VU-MW07	364507.7	6329821.8	15.75	14.91
VU-MW08	364023.0	6328949.2	24.15	23.48
VU-MW09	364273.4	6329231.2	22.48	21.80
VU-MW12	365154.3	6329239.0	3.85	4.04
VU-MW13	364433.1	6329651.6	19.16	18.46
VU-MW14	364254.1	6329372.2	22.57	21.88
VU-MW15	363763.2	6330164.4	11.10	10.45
VU-MW16	362691.9	6326528.3	19.69	18.95
VU-MW17	361848.8	6326327.7	35.63	34.76
VU-MW20	359836.9	6328129.6	28.19	27.60

**Notes:** Survey using GPS and Total Station methods  
Above horizontal coordinates accuracy  $\pm 0.030\text{mm}$  only  
Above vertical levels accuracy  $\pm 0.030\text{mm}$  only

Origin of Coordinates SSM 18511  
Easting 363411.524  
Northing 6329799.268  
RL 22.823

Top of the pipe level relates to the top of the PVC pipe.  
Ground level is an indication of the ground level in the immediate area of the well.

**ERM** has over 100 offices  
across the following  
countries worldwide

Australia	Netherlands
Argentina	Peru
Belgium	Poland
Brazil	Portugal
China	Puerto Rico
France	Singapore
Germany	Spain
Hong Kong	Sri Lanka
Hungary	Sweden
India	Taiwan
Indonesia	Thailand
Ireland	UK
Italy	USA
Japan	Venezuela
Korea	Vietnam
Malaysia	
Mexico	

### **Environmental Resources Management**

Building C, 33 Saunders Street  
Pyrmont NSW 2009  
Locked Bag 24,  
Broadway NSW 2007

T: 61 2 8584 8888  
F: 61 2 8584 8800  
[www.erm.com](http://www.erm.com)

